THE

AMERICAN EPHEMERIS

AND

NAUTICAL ALMANAC

FOR THE YEAR

1897

FIRST EDITION

PUBLISHED IN COMPLIANCE WITH A JOINT RESOLUTION OF THE FORTY SIXTH CONGRESS

WASHINGTON:
BUREAU OF EQUIPMENT.
1894

JOINT RESOLUTION

FOR PRINTING THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, *That there shall be printed annually at the Government Printing Office fifteen hundred copies of the American Ephemeris and Nautical Almanac and of the papers supplementary thereto, of which one hundred shall be for the use of the Senate, four hundred for the House of Representatives, and one thousand for the public service, to be distributed by the Navy Department.*

Sec. 2. That additional copies of the Ephemeris and of the Nautical Almanac extracted therefrom may be ordered by the Secretary of the Navy for sale: Provided, That all moneys received from such sale shall be deposited in the Treasury to the credit of the appropriation for public printing.

Approved, February 12, 1880.

PREFACE.

The arrangement of *The American Ephemeris* adopted in the volume for the year 1882, and explained in the Appendix to that volume, has been continued without radical change to the present time.

The additions then made comprise more complete data for eclipses of the sun, diagrams showing the configurations of the satellites of Jupiter, data respecting the disks of Mercury and Venus for the reduction of meridian and photometric observations, and diagrams, with tables, for identifying any known satellites of other planets. The work is divided into three parts, as follows:—

Part I, *Ephemeris for the Meridian of Greenwich*, gives the geocentric and heliocentric positions of the major planets, the Ephemeris of the Sun, and other fundamental astronomical data for equi-distant intervals of Greenwich mean time.

Part II, *Ephemeris for the Meridian of Washington*, gives the ephemerides of the fixed stars, sun, moon, and major planets for transit over the meridian of the old Naval Observatory, Washington. The mean places of the fixed stars and the data for their reduction are also included in this part. The list of mean and apparent places of fixed stars was greatly enlarged in 1885 for the convenience of field-astronomers.

Part III, *Phenomena*, contains predictions of phenomena to be observed, with data for their computation. Washington mean time of the old Naval Observatory is used in this part except in a few cases, notably that of eclipses, where Greenwich mean time was judged more convenient.

SIMON NEWCOMB,

Professor U. S. Navy, Superintendent.

Washington, *March*, 1894.

CONTENTS.

CORRECTIONS.

Ephemeris for 1894.

Page.				
149, Sept. 27 and 28, subtract 1 day from the Moon's age.				
295 and 299, Magnitude of χ Draconis,	*for*	5.3	*read*	3.8
297, Magnitude of Groombridge 4163,	*for*	7.0	*read*	6.6
414, Log $\Delta\mu$ for 1 minute,	*for*	9.4154	*read*	1.1762
416, Log $\Delta\mu$ for 1 minute,	*for*	9.4177	*read*	1.1762
417, Eclipse of Sept. 28. The numbers in the column Duration of Totality should be multiplied by ten, and from $16^h\ 5^m$ to $19^h\ 10^m$ the width of the shadow-path should be increased in the same ratio.				
489,	*for*	Nov. $11^d\ 0^h\ 56^m$	*read*	Nov. $12^d\ 0^h\ 56^m$

Ephemeris for 1895. (*First Edition only.*)

5, Jan. 1. Moon's Merid. Pass.,	*for*	$4^h\ 9.6^m$		*read*	$4^h\ 9^m.9$
280, Independent Star Numbers,	*for*		$3^s.07261$	*read*	$3^s.07263$
295 and 299, Magnitude of χ Draconis,	*for*	5.3		*read*	3.8
297, Magnitude of Groombridge 4163,	*for*	7.0		*read*	6.6
414, Solar Eclipse of Sept. 3.	Total eclipse begins		$3^d\ 16^h\ 6^m.4$	*read*	$3^d\ 17^h\ 6^m.4$
415, Solar Eclipse of Sept. 18.	Eclipse begins in long.		167° 4′.8 W.,	*read*	164° 20′.1 E.
	Greatest Eclipse in long.		169° 13′.9 E.	*read*	140° 38′.9 E.
	Eclipse ends in long.		47° 42′.8 W.	*read*	76° 17′.8 W.
418, Solar Eclipse of Sept. 18.	The values of μ should be increased by				28° 35′
In the chart of this eclipse the diagram should be 28° 35′ farther to the west.					
419, Moon's last quarter Oct. 10 and first quarter Oct 24, subtract one minute from the given times.					
489, Insert Aug. $13^d\ 2^h$ ♀ greatest brilliancy.					
489, Insert October $25^d\ 18^h$, ♀ greatest brilliancy.					
489, Nov. $8^d\ 14^h$	*for*	☍		*read*	☌
493, Longitude of Tokio,	*for*	$-\ 16^h\ 14^m\ 19^s.85$		*read*	$-\ 14^h\ 27^m\ 10^s.0$
	for	$-\ 11^h\ 6^m\ 7^s.81$		*read*	$-\ 9^h\ 18^m\ 58^s.0$
493, Longitude of West Point,	*for*	$-\ 4^h\ 55^m\ 50^s.55$		*read*	$+\ 4^h\ 55^m\ 50^s.55$
502, line 3.	*for*	0.2966		*read*	0.2877
505, line 48, Omit the words "and a transit of Mercury."					
516, line 15.	*for*	$\pm\ 4^m.707$		*read*	$\pm\ 14^m.707$
521, line 7.	*for*	0″.31		*read*	0″.28
521, Sirius 1896.0 $\Delta\alpha$	*for*	$+\ 0^s.083$		*read*	$+\ 0^s.092$

Ephemeris for 1896. (*First Edition only.*)

295 and 299, Magnitude of χ Draconis	*for*	5.3	*read*	3.8
297, Magnitude of Groombridge 4163,	*for*	7.0	*read*	6.6
289–292, Top of column Log. i, strike out s				
417, Moon's Greatest Libration March,	*for*	$5^d\ 24^h\ 11^m$	*read*	$6^d\ 0^h\ 11^m$
461, Satellite II,	*for*	Dec. 28	*read*	Dec. 29
508, Line 4 from bottom,	*for*	perpedicular	*read*	perpendicular
511, Line 22 from top,	*for*	computor	*read*	computer

CHRONOLOGICAL ERAS AND CYCLES.

CHRONOLOGICAL ERAS.

THE YEAR 1897, WHICH COMPRISES THE LATTER PART OF THE 121ST AND THE FIRST PART OF THE 122ND YEAR OF THE INDEPENDENCE OF THE UNITED STATES OF AMERICA, CORRESPONDS TO—

The year 6610 of the Julian Period;

" 7405-7406 of the Byzantine era, the year 7405 commencing on September 1st;

" 5657-5658 of the Jewish era, the year 5658 commencing on September 27th, or, more exactly, at sunset on September 26th;

" 2650 since the foundation of Rome, according to VARRO;

" 2644 since the beginning of the era of NABONASSAR, which has been assigned to Wednesday, the 26th of February of the 3967th year of the Julian Period; corresponding, in the notation of chronologists, to the 747th; and, in the notation of astronomers, to the 746th year before the birth of CHRIST;

" 2673 of the Olympiads, or the first year of the 669th Olympiad commencing in July, 1897, if we fix the era of the Olympiads at 775½ years before CHRIST, or near the beginning of July of the year 3938 of the Julian Period;

" 2209 of the Grecian era, or the era of the SELEUCIDÆ;

" 1613 of the era of DIOCLETIAN;

" 2557 of the Japanese era and to the 30th year of the period entitled "Meiji."

The year 1315 of the Mohammedan era, or the era of the Hegira, begins on the 2nd day of June, 1897

The first day of January of the year 1897 is the 2,413,926th day since the commencement of the Julian Period.

CHRONOLOGICAL CYCLES.

Dominical Letter	C	Solar Cycle	2
Epact . . .	26	Roman Indiction . . .	10
Lunar Cycle or Golden Number .	17	Julian Period	6610

SYMBOLS AND ABBREVIATIONS.

SIGNS OF THE PLANETS, ETC.

☉	The Sun.	♂	Mars.
☾	The Moon.	♃	Jupiter.
☿	Mercury.	♄	Saturn.
♀	Venus.	♅	Uranus.
⊕	The Earth.	♆	Neptune.

SIGNS OF THE ZODIAC.

Spring Signs.	1.	♈	Aries.	Autumn Signs.	7.	♎	Libra.
	2.	♉	Taurus.		8.	♏	Scorpius.
	3.	♊	Gemini.		9.	♐	Sagittarius.
Summer Signs.	4.	♋	Cancer.	Winter Signs.	10.	♑	Capricornus.
	5.	♌	Leo.		11.	♒	Aquarius.
	6.	♍	Virgo.		12.	♓	Pisces.

ASPECTS

☌ Conjunction, or having the same Longitude or Right Ascension.
□ Quadrature, or differing 90° in Longitude or Right Ascension.
☍ Opposition, or differing 180° in Longitude or Right Ascension.

ABBREVIATIONS

☊	Ascending Node.	°	Degrees.
☋	Descending Node.	′	Minutes of Arc.
N.	North.	″	Seconds of Arc.
S.	South.	h	Hours.
E.	East.	m	Minutes of Time.
W.	West.	s	Seconds of Time.

PART I

ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF GREENWICH

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Frid.	1	18 49 36.44	11.038	S.22 57 52.4	+13.08	16 18.36	71.03	4 0.80	1.178
Sat.	2	18 54 1.19	11.023	22 52 24.7	14.22	16 18.35	70.98	4 28.90	1.162
SUN.	3	18 58 25.56	11.007	22 46 29.6	15.36	16 18.34	70.93	4 56.64	1.146
Mon.	4	19 2 49.54	10.990	22 40 7.4	+16.49	16 18.33	70.88	5 23.98	1.129
Tues.	5	19 7 13.07	10.971	22 33 18.1	17.61	16 18.31	70.82	5 50.88	1.111
Wed.	6	19 11 36.14	10.951	22 26 2.1	18.72	16 18.29	70.76	6 17.32	1.091
Thur.	7	19 15 58.70	10.929	22 18 19.6	+19.82	16 18.27	70.69	6 43.25	1.070
Frid.	8	19 20 20.73	10.907	22 10 10.8	20.91	16 18.24	70.62	7 8.66	1.047
Sat.	9	19 24 42.20	10.883	22 1 36.0	21.99	16 18.20	70.54	7 33.50	1.023
SUN.	10	19 29 3.09	10.858	21 52 35.4	+23.06	16 18.16	70.46	7 57.77	0.998
Mon.	11	19 33 23.38	10.832	21 43 9.4	24.12	16 18.12	70.38	8 21.43	0.973
Tues.	12	19 37 43.02	10.805	21 33 18.1	25.16	16 18.07	70.30	8 44.45	0.946
Wed.	13	19 42 2.02	10.778	21 23 1.9	+26.19	16 18.02	70.21	9 6.83	0.918
Thur.	14	19 46 20.35	10.750	21 12 21.1	27.21	16 17.96	70.12	9 28.54	0.890
Frid.	15	19 50 37.99	10.721	21 1 15.9	28.22	16 17.90	70.03	9 49.57	0.862
Sat.	16	19 54 54.93	10.691	20 49 46.8	+29.21	16 17.83	69.94	10 9.89	0.832
SUN.	17	19 59 11.16	10.661	20 37 54.0	30.19	16 17.75	69.84	10 29.51	0.802
Mon.	18	20 3 26.66	10.630	20 25 37.8	31.16	16 17.67	69.74	10 48.40	0.772
Tues.	19	20 7 41.43	10.600	20 12 58.4	+32.11	16 17.58	69.64	11 6.56	0.741
Wed.	20	20 11 55.44	10.569	19 59 56.4	33.05	16 17.48	69.54	11 23.98	0.710
Thur.	21	20 16 8.72	10.537	19 46 31.9	33.98	16 17.38	69.43	11 40.64	0.679
Frid.	22	20 20 21.22	10.505	19 32 45.3	+34.89	16 17.27	69.32	11 56.55	0.647
Sat.	23	20 24 32.96	10.473	19 18 36.9	35.79	16 17.16	69.21	12 11.69	0.615
SUN.	24	20 28 43.92	10.441	19 4 7.2	36.68	16 17.04	69.10	12 26.06	0.583
Mon.	25	20 32 54.11	10.408	18 49 16.5	+37.55	16 16.92	68.99	12 39.65	0.550
Tues.	26	20 37 3.50	10.375	18 34 5.1	38.41	16 16.79	68.88	12 52.45	0.517
Wed.	27	20 41 12.10	10.342	18 18 33.4	39.25	16 16.65	68.77	13 4.46	0.484
Thur.	28	20 45 19.91	10.309	18 2 41.8	+40.06	16 16.52	68.66	13 15.68	0.451
Frid.	29	20 49 26.91	10.275	17 46 30.8	40.86	16 16.38	68.54	13 26.09	0.417
Sat.	30	20 53 33.10	10.241	17 30 0.6	41.64	16 16.23	68.43	13 35.70	0.383
SUN.	31	20 57 38.47	10.207	17 13 11.8	42.41	16 16.09	68.32	13 44.49	0.349
Mon.	32	21 1 43.02	10.173	S.16 56 4.8	+43.16	16 15.94	68.20	13 52.47	0.315

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.19 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Frid.	1	18 49 35.70	11.034	S 22 57 53.3	+13.08	4 0.71	1.178	18 45 34.99
Sat.	2	18 54 0.37	11.020	22 52 25.8	14.22	4 28.52	1.163	18 49 31.55
SUN.	3	18 58 24.[illegible]	11.004	22 46 30.9	15.35	4 56.55	1.147	18 53 28.11
Mon.	4	19 2 48.55	10.[illegible]	22 40 8.9	+16.47	5 23.88	1.130	18 57 24.67
Tues.	5	19 7 12.00	10.967	22 33 19.9	17.59	5 50.77	1.111	19 1 21.23
Wed.	6	19 11 34.99	10.947	22 26 4.1	18.70	6 17.20	1.091	19 5 17.79
Thur.	7	19 15 57.47	10.926	22 18 21.9	+19.81	6 43.13	1.069	19 9 14.34
Frid.	8	19 20 19.43	10.903	22 10 13.3	20.90	7 8.53	1.046	19 13 10.90
Sat.	9	19 24 40.83	10.880	22 1 38.8	21.98	7 33.37	1.023	19 17 7.46
SUN.	10	19 29 1.65	10.855	21 52 38.5	+23.05	7 57.63	0.999	19 21 4.02
Mon.	11	19 33 21.87	10.829	21 43 12.8	24.10	8 21.29	0.973	19 25 0.58
Tues.	12	19 37 41.45	10.802	21 33 21.8	25.14	8 44.31	0.946	19 28 57.13
Wed.	13	19 42 0.38	10.775	21 23 5.9	+26.17	9 6.69	0.918	19 32 53.69
Thur.	14	19 46 18.75	10.747	21 12 25.4	27.19	9 28.40	0.890	19 36 50.25
Frid.	15	19 50 36.23	10.718	21 1 26.6	28.20	9 49.42	0.862	19 40 46.81
Sat.	16	19 54 53.12	10.689	20 49 51.8	+29.20	10 9.75	0.833	19 44 43.37
SUN.	17	19 59 9.29	10.659	20 37 57.3	30.18	10 29.37	0.802	19 48 39.92
Mon.	18	20 3 24.74	10.629	20 25 43.4	31.15	10 48.26	0.772	19 52 36.48
Tues.	19	20 7 39.46	10.598	20 13 4.4	+32.10	11 6.42	0.741	19 56 33.04
Wed.	20	20 11 53.44	10.567	20 0 2.7	33.04	11 23.84	0.710	20 0 29.60
Thur.	21	20 16 6.[illegible]	10.535	19 46 38.5	33.97	11 40.51	0.679	20 4 26.15
Frid.	22	20 20 19.13	10.503	19 32 52.3	+34.88	11 56.42	0.647	20 8 22.71
Sat.	23	20 24 30.83	10.471	19 18 44.3	35.78	12 11.56	0.615	20 12 19.27
SUN.	24	20 28 41.76	10.439	19 4 14.9	36.66	12 25.93	0.581	20 16 15.83
Mon.	25	20 32 51.91	10.407	18 49 24.5	+37.53	12 39.53	0.550	20 20 12.38
Tues.	26	20 37 1.29	10.374	18 34 13.4	38.39	12 52.34	0.517	20 24 8.94
Wed.	27	20 41 9.85	10.341	18 18 42.0	39.22	13 4.35	0.484	20 28 5.50
Thur.	28	20 45 17.[illegible]	10.308	18 2 51.7	+40.04	13 15.55	0.451	20 32 2.05
Frid.	29	20 49 24.[illegible]	10.274	17 46 41.0	40.85	13 [illegible]	0.417	20 35 58.61
Sat.	30	20 53 3[illegible]	10.24[illegible]	17 30 1[illegible]	41.64	13 35.01	0.384	20 39 55.17
SUN.	31	20 57 3[illegible]	10.2[illegible]	17 13 21.6	42.40	13 44.41	0.350	20 43 51.72
Mon.	32	21 1 4[illegible]	[illegible]	S [illegible]	+43.[illegible]	13 52.[illegible]	0.316	20 47 48.28

NOTE.—The semi-diameter for mean noon [illegible]
The sign + [illegible] change of declination indicates that south declinations are decreasing.

Diff. for 1 Hour
+9.8565
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	1	281 24 29.2	24 17.0	152.96	− 0.64	9.9926767	+ 0.7	5 13 33.50
2	2	282 25 40.2	25 27.8	152.96	0.57	9.9926793	1.5	5 9 37.59
3	3	283 26 51.4	26 38.8	152.96	0.46	9.9926837	2.2	5 5 41.67
4	4	284 28 2.5	27 49.7	152.96	− 0.35	9.9926897	+ 2.9	5 1 45.76
5	5	285 29 13.4	29 0.4	152.95	0.23	9.9926973	3.6	4 57 49.85
6	6	286 30 24.0	30 10.8	152.93	− 0.10	9.9927067	4.3	4 53 53.94
7	7	287 31 34.2	31 20.8	152.91	+ 0.03	9.9927179	+ 5.0	4 49 58.02
8	8	288 32 43.9	32 30.4	152.89	0.15	9.9927308	5.8	4 46 2.[illegible]
9	9	289 33 53.1	33 39.4	152.87	0.25	9.9927456	6.6	4 42 6.20
10	10	290 35 1.7	34 47.8	152.85	+ 0.34	9.9927625	+ 7.5	4 38 10.28
11	11	291 36 9.7	35 55.6	152.82	0.38	9.9927816	8.4	4 34 14.37
12	12	292 37 17.0	37 2.8	152.79	0.41	9.9928030	9.4	4 30 18.46
13	13	293 38 23.6	38 9.2	152.76	+ 0.41	9.9928268	+10.4	4 26 22.55
14	14	294 39 29.4	39 14.8	152.73	0.38	9.9928531	11.5	4 22 26.64
15	15	295 40 34.5	40 19.7	152.70	0.31	9.9928819	12.6	4 18 30.72
16	16	296 41 38.9	41 23.9	152.67	+ 0.22	9.9929135	+13.7	4 14 34.81
17	17	297 42 42.7	42 27.6	152.64	+ 0.11	9.9929478	14.9	4 10 38.90
18	18	298 43 45.7	43 30.4	152.61	− 0.01	9.9929849	16.0	4 6 42.99
19	19	299 44 48.1	44 32.6	152.58	− 0.14	9.9930248	+17.2	4 2 47.08
20	20	300 45 49.9	45 34.3	152.56	0.28	9.9930673	18.3	3 58 51.17
21	21	301 46 51.1	46 35.3	152.54	0.41	9.9931126	19.4	3 54 55.25
22	22	302 47 51.8	47 35.8	152.51	− 0.53	9.9931604	+20.5	3 50 59.34
23	23	303 48 51.8	48 35.6	152.49	0.62	9.9932107	21.5	3 47 3.43
24	24	304 49 51.4	49 35.1	152.46	0.70	9.9932635	22.4	3 43 7.52
25	25	305 50 50.3	50 33.8	152.44	− 0.74	9.9933183	+23.3	3 39 11.61
26	26	306 51 48.7	51 32.1	152.42	0.76	9.9933753	24.1	3 35 15.70
27	27	307 52 46.4	52 29.6	152.39	0.74	9.9934343	24.9	3 31 19.79
28	28	308 53 43.4	53 26.4	152.36	− 0.70	9.9934950	+25.6	3 27 23.88
29	29	309 54 39.7	54 22.6	152.33	0.63	9.9935573	26.3	3 23 27.97
30	30	310 55 35.2	55 17.9	152.29	0.54	9.9936212	26.9	3 19 32.06
31	31	311 56 29.7	56 12.3	152.25	0.43	9.9936866	27.5	3 15 36.14
32	32	312 57 23.3	57 5.7	152.21	− 0.30	9.9937533	+21.8	3 11 [illegible]0.23

NOTE.—The numbers in column λ correspo[illegible] to the true equinox of the date; in column λ' to the mean equinox of January $0^d.0$

Diff. for 1 Hour
$-9^s.8296$
(Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter.		Horizontal Parallax.				Upper Transit.		Age.
	Noon.	Midnight.	Noon.	Diff. for 1 Hour.	Midnight.	Diff. for 1 Hour.	Meridian of Greenwich.	Diff. for 1 Hour.	Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	16 16.4	16 13.7	59 36.8	1.60	59 27.1	-0.93	23 30.2	2.60	27.8
2	16 10.3	16 6.2	59 14.6	1.15	58 59.6	1.35	5		28.8
3	16 1.5	15 56.2	58 42.1	1.53	58 22.7	1.69	0 21.0	2.45	0.2
4	15 50.5	15 44.4	58 1.6	1.80	57 39.5	-1.88	1 17.3	2.24	1.2
5	15 38.2	15 31.9	57 16.6	1.91	56 53.6	1.91	2 8.5	2.03	2.2
6	15 25.7	15 19.7	56 31.8	1.87	56 8.7	1.80	2 55.2	1.87	3.2
7	15 14.0	15 8.7	55 47.7	-1.69	55 28.1	1.55	3 38.6	1.75	4.2
8	15 3.8	14 59.6	55 10.4	1.30	54 54.7	1.22	4 19.8	1.69	5.2
9	14 55.9	14 52.9	54 41.2	1.02	54 30.2	0.81	5 0.1	1.68	6.2
10	14 50.6	14 49.0	54 21.8	0.53	54 16.0	0.38	5 40.7	1.71	7.2
11	14 48.2	14 48.0	54 12.8	-0.15	54 12.3	+0.07	6 22.7	1.79	8.2
12	14 4[illegible]	14 49.9	54 14.4	+0.28	54 19.1	0.49	7 7.1	1.90	9.2
13	14 51.8	14 54.3	54 26.1	+0.68	54 35.5	+0.87	7 54.3	2.04	10.2
14	14 57.4	15 1.0	54 46.9	1.05	55 0.1	1.17	8 44.8	2.16	11.2
15	15 5.1	15 9.5	55 15.0	1.33	55 31.2	1.50	9 38.0	2.26	12.2
16	15 14.2	15 19.1	55 48.4	+1.46	56 6.3	+1.51	10 32.7	2.30	13.2
17	15 24.0	15 29.0	56 24.6	1.53	56 43.0	1.53	11 27.4	2.26	14.2
18	15 34.0	15 38.8	57 1.2	1.49	57 18.9	1.44	12 20.8	2.18	15.2
19	15 43.4	15 47.7	57 35.8	+1.36	57 51.5	+1.25	13 12.1	2.09	16.2
20	15 51.6	15 55.2	58 5.9	1.15	58 19.1	1.04	14 1.3	2.02	17.2
21	15 58.4	16 1.2	58 31.8	0.91	58 41.0	0.78	14 49.1	1.97	18.2
22	16 3.5	16 5.5	58 49.6	+0.66	58 56.8	+0.54	15 36.5	1.98	19.2
23	16 7.1	16 8.3	59 2.6	0.43	59 7.0	0.32	16 24.8	2.04	20.2
24	16 9.1	16 9.6	59 10.2	0.21	59 12.1	+0.12	17 15.1	2.16	21.2
25	16 9.9	16 9.8	59 13.0	+0.01	59 12.7	-0.08	18 8.5	2.30	22.2
26	16 9.4	16 8.8	59 11.3	-0.16	59 8.9	-0.28	19 5.6	2.45	23.2
27	16 7.8	16 6.5	59 5.3	0.38	59 0.5	0.45	20 5.8	2.55	24.2
28	16 4.9	16 2.9	58 54.5	0.55	58 47.2	[illegible]	21 7.3	2.57	25.2
29	16 0.5	[illegible]	[illegible]	[illegible]	58 25.3	[illegible]	22 7.6	2.4[illegible]	26.2
30	15 54.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23 4.7	[illegible]	27.2
31	15 47.2	15 4[illegible]	57 47.7	[illegible]	57 34.3	1.32	23 57.5	2.11	28.2
32	15 38.6	15 33.[illegible]	57 17.[illegible]	1.40	57 0.7	1.46	5		29.2

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 1.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	17 6 53.20	2.7013	S.27 17 1.2	1.557
1	17 9 35.29	2.7016	27 18 28.8	1.362
2	17 12 17.39	2.7017	27 19 44.7	1.167
3	17 14 59.49	2.7016	27 20 48.9	0.972
4	17 17 41.58	2.7012	27 21 41.4	0.777
5	17 20 23.64	2.7007	27 22 22.1	0.581
6	17 23 5.67	2.7001	27 22 51.1	0.386
7	17 25 47.65	2.6992	27 23 8.4	− 0.191
8	17 28 29.57	2.6982	27 23 14.0	+ 0.005
9	17 31 11.43	2.6970	27 23 7.8	0.200
10	17 33 53.21	2.6955	27 22 50.0	0.394
11	17 36 34.89	2.6938	27 22 20.5	0.588
12	17 39 16.47	2.6921	27 21 39.4	0.782
13	17 41 57.94	2.6901	27 20 46.7	0.975
14	17 44 39.28	2.6878	27 19 42.4	1.168
15	17 47 20.48	2.6854	27 18 26.5	1.361
16	17 50 1.53	2.6828	27 16 59.1	1.552
17	17 52 42.42	2.6802	27 15 20.3	1.743
18	17 55 23.15	2.6773	27 13 30.0	1.933
19	17 58 3.70	2.6742	27 11 28.3	2.123
20	18 0 44.05	2.6708	27 9 15.2	2.312
21	18 3 24.20	2.6674	27 6 50.9	2.499
22	18 6 4.14	2.6637	27 4 15.3	2.687
23	18 8 43.85	2.6599	S.27 1 28.4	2.874

SATURDAY 2.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	18 11 23.33	2.6560	S.26 58 30.4	3.059
1	18 14 2.57	2.6518	26 55 21.3	3.244
2	18 16 41.55	2.6475	26 52 1.1	3.427
3	18 19 20.27	2.6431	26 48 30.0	3.609
4	18 21 58.72	2.6385	26 44 48.0	3.791
5	18 24 36.89	2.6337	26 40 55.1	3.972
6	18 27 14.76	2.6287	26 36 51.4	4.151
7	18 29 52.33	2.6237	26 32 37.0	4.328
8	18 32 29.60	2.6185	26 28 12.0	4.505
9	18 35 6.55	2.6131	26 23 36.4	4.681
10	18 37 43.17	2.6076	26 18 50.3	4.855
11	18 40 19.46	2.6020	26 13 53.8	5.027
12	18 42 55.41	2.5962	26 8 47.0	5.199
13	18 45 31.01	2.5903	26 3 29.9	5.369
14	18 48 6.25	2.5843	25 58 2.7	5.537
15	18 50 41.13	2.5782	25 52 25.4	5.705
16	18 53 15.64	2.5719	25 46 38.1	5.871
17	18 55 49.76	2.5655	25 40 40.9	6.036
18	18 58 23.50	2.5591	25 34 33.8	6.199
19	19 0 56.85	2.5525	25 28 17.0	6.360
20	19 3 29.80	2.5458	25 21 50.6	6.519
21	19 6 2.35	2.5391	25 15 14.7	6.677
22	19 8 34.49	2.5322	25 8 29.3	6.834
23	19 11 6.22	2.5253	25 1 34.6	6.989
24	19 13 37.53	2.5182	S.24 54 30.6	7.142

SUNDAY 3.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	19 13 37.53	2.5182	S.24 54 30.6	7.142
1	19 16 8.41	2.5111	24 47 17.5	7.294
2	19 18 38.86	2.5039	24 39 55.3	7.444
3	19 21 8.88	2.4967	24 32 24.2	7.592
4	19 23 38.46	2.4895	24 24 44.2	7.739
5	19 26 7.59	2.4818	24 16 55.5	7.883
6	19 28 36.28	2.4744	24 8 58.2	8.027
7	19 31 4.52	2.4668	24 0 52.3	8.168
8	19 33 32.30	2.4592	23 52 38.0	8.308
9	19 35 59.63	2.4517	23 44 15.3	8.447
10	19 38 26.50	2.4439	23 35 44.4	8.583
11	19 40 52.90	2.4361	23 27 5.4	8.717
12	19 43 18.83	2.4283	23 18 18.4	8.849
13	19 45 44.29	2.4205	23 9 23.5	8.980
14	19 48 9.29	2.4127	23 0 20.8	9.109
15	19 50 33.82	2.4049	22 51 10.4	9.237
16	19 52 57.88	2.3970	22 41 52.4	9.362
17	19 55 21.46	2.3890	22 32 26.9	9.486
18	19 57 44.56	2.3810	22 22 54.1	9.607
19	20 0 7.18	2.3731	22 13 14.0	9.727
20	20 2 29.33	2.3652	22 3 26.8	9.846
21	20 4 51.00	2.3572	21 53 32.5	9.963
22	20 7 12.19	2.3492	21 43 31.3	10.077
23	20 9 32.90	2.3411	S.21 33 23.3	10.189

MONDAY 4.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	20 11 53.12	2.3330	S.21 23 8.6	10.301
1	20 14 12.86	2.3251	21 12 47.2	10.410
2	20 16 32.13	2.3172	21 2 19.4	10.517
3	20 18 50.92	2.3092	20 51 45.2	10.623
4	20 21 9.23	2.3012	20 41 4.7	10.727
5	20 23 27.06	2.2932	20 30 18.0	10.828
6	20 25 44.41	2.2852	20 19 25.3	10.928
7	20 28 1.29	2.2773	20 8 26.6	11.027
8	20 30 17.69	2.2694	19 57 22.1	11.123
9	20 32 33.62	2.2616	19 46 11.8	11.218
10	20 34 49.08	2.2537	19 34 55.9	11.312
11	20 37 4.07	2.2458	19 23 34.4	11.403
12	20 39 18.58	2.2380	19 12 7.5	11.492
13	20 41 32.63	2.2303	19 0 35.3	11.581
14	20 43 46.22	2.2226	18 48 57.8	11.667
15	20 45 59.34	2.2149	18 37 15.2	11.752
16	20 48 12.00	2.2072	18 25 27.6	11.835
17	20 50 24.20	2.1996	18 13 35.0	11.917
18	20 52 35.95	2.1920	18 1 37.6	11.996
19	20 54 47.24	2.1845	17 49 35.5	12.073
20	20 56 58.09	2.1771	17 37 28.8	12.150
21	20 59 8.49	2.1696	17 25 17.5	12.225
22	21 1 18.44	2.1622	17 13 1.8	12.297
23	21 3 27.95	2.1549	17 0 41.8	12.368
24	21 5 37.03	2.1477	S.16 48 17.6	12.438

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 5.

Hour.	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ' ")	Diff. for 1 Minute
0	21 5 37.03	[illegible]	S. 16 48 17.6	[illegible]
1	21 7 45.67	[illegible]	16 35 40.2	[illegible]
2	21 9 53.88	[illegible]	16 23 16.8	[illegible]
3	21 12 1.65	[illegible]	16 10 40.4	[illegible]
4	21 14 9.00	[illegible]	15 58 0.2	[illegible]
5	21 16 15.93	[illegible]	15 45 16.2	[illegible]
6	21 18 22.45	[illegible]	15 32 28.5	[illegible]
7	21 20 28.55	[illegible]	15 19 37.2	[illegible]
8	21 22 34.24	[illegible]	15 6 42.4	[illegible]
9	21 24 39.52	[illegible]	14 53 44.3	[illegible]
10	21 26 44.40	[illegible]	14 40 42.9	[illegible]
11	21 28 48.89	[illegible]	14 27 38.2	[illegible]
12	21 30 52.98	[illegible]	14 14 30.3	[illegible]
13	21 32 56.68	[illegible]	14 1 19.4	[illegible]
14	21 35 0.00	[illegible]	13 48 5.5	[illegible]
15	21 37 2.93	[illegible]	13 34 48.8	[illegible]
16	21 39 5.48	[illegible]	13 21 29.3	[illegible]
17	21 41 7.66	[illegible]	13 8 7.0	[illegible]
18	21 43 9.48	[illegible]	12 54 42.1	[illegible]
19	21 45 10.93	[illegible]	12 41 14.6	[illegible]
20	21 47 12.02	[illegible]	12 27 44.6	[illegible]
21	21 49 12.75	[illegible]	12 14 12.3	[illegible]
22	21 51 13.13	[illegible]	12 0 37.7	[illegible]
23	21 53 13.17	[illegible]	S. 11 47 0.8	[illegible]

WEDNESDAY 6.

Hour.	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ' ")	Diff. for 1 Minute
0	21 55 12.87	[illegible]	S. 11 33 21.7	[illegible]
1	21 57 12.23	[illegible]	11 19 40.5	[illegible]
2	21 59 11.26	[illegible]	11 5 57.4	[illegible]
3	22 1 9.95	[illegible]	10 52 12.3	[illegible]
4	22 3 8.32	[illegible]	10 38 25.3	[illegible]
5	22 5 6.38	[illegible]	10 24 36.5	[illegible]
6	22 7 4.12	[illegible]	10 10 46.0	[illegible]
7	22 9 1.55	[illegible]	9 56 53.8	[illegible]
8	22 10 58.68	[illegible]	9 43 0.0	[illegible]
9	22 12 55.51	[illegible]	9 29 4.8	[illegible]
10	22 14 52.04	[illegible]	9 15 8.1	[illegible]
11	22 16 48.29	[illegible]	9 1 10.0	[illegible]
12	22 18 44.25	[illegible]	8 47 10.6	[illegible]
13	22 20 [illegible]	[illegible]	8 33 10.0	[illegible]
14	22 22 35.34	[illegible]	8 19 8.2	[illegible]
15	22 24 30.47	[illegible]	8 5 5.2	[illegible]
16	22 26 25.34	[illegible]	7 51 1.8	[illegible]
17	22 28 [illegible]	[illegible]	7 36 56.2	[illegible]
18	22 30 14.3[illegible]	[illegible]	7 22 5[illegible]	[illegible]
19	22 32 8.40	[illegible]	7 8 43.5	[illegible]
20	22 34 2.26	[illegible]	6 54 35.[illegible]	[illegible]
21	22 35 55.[illegible]	[illegible]	6 40 [illegible]	[illegible]
22	22 37 49.[illegible]	[illegible]	6 26 1[illegible]	[illegible]
23	22 39 42.[illegible]	[illegible]	6 12 9.0	[illegible]
24	22 41 [illegible]	[illegible]	S. 5 5[illegible]	[illegible]

THURSDAY 7.

Hour.	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ' ")	Diff. for 1 Minute
0	22 41 35.31	[illegible]	S. 5 57 58.8	[illegible]
1	22 43 28.01	[illegible]	5 43 48.1	[illegible]
2	22 45 20.49	[illegible]	5 29 36.9	[illegible]
3	22 47 12.76	[illegible]	5 15 25.4	[illegible]
4	22 49 4.82	[illegible]	5 1 13.5	[illegible]
5	22 50 56.69	[illegible]	4 47 1.3	[illegible]
6	22 52 48.36	[illegible]	4 32 48.9	[illegible]
7	22 54 39.84	[illegible]	4 18 36.3	[illegible]
8	22 56 31.13	[illegible]	4 4 23.6	[illegible]
9	22 58 22.23	[illegible]	3 50 10.8	[illegible]
10	23 0 13.15	[illegible]	3 35 58.0	[illegible]
11	23 2 3.91	[illegible]	3 21 45.3	[illegible]
12	23 3 54.50	[illegible]	3 7 32.6	[illegible]
13	23 5 44.93	[illegible]	2 53 20.1	[illegible]
14	23 7 35.20	[illegible]	2 39 7.8	[illegible]
15	23 9 25.31	[illegible]	2 24 55.6	[illegible]
16	23 11 15.28	[illegible]	2 10 43.7	[illegible]
17	23 13 5.11	[illegible]	1 56 32.2	[illegible]
18	23 14 54.79	[illegible]	1 42 21.1	[illegible]
19	23 16 44.34	[illegible]	1 28 10.4	[illegible]
20	23 18 33.77	[illegible]	1 14 0.2	[illegible]
21	23 20 23.07	[illegible]	0 59 50.5	[illegible]
22	23 22 12.25	[illegible]	0 45 41.3	[illegible]
23	23 24 1.32	[illegible]	S. 0 31 32.8	[illegible]

FRIDAY 8.

Hour.	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ' ")	Diff. for 1 Minute
0	23 25 50.28	[illegible]	S. 0 17 25.0	[illegible]
1	23 27 39.13	[illegible]	S. 0 3 17.9	14.111
2	23 29 27.89	[illegible]	N. 0 10 48.5	[illegible]
3	23 31 16.55	[illegible]	0 24 54.1	[illegible]
4	23 33 5.12	[illegible]	0 38 58.8	[illegible]
5	23 34 53.60	[illegible]	0 53 2.7	[illegible]
6	23 36 42.00	[illegible]	1 7 5.7	[illegible]
7	23 38 30.32	[illegible]	1 21 7.7	[illegible]
8	23 40 18.58	[illegible]	1 35 8.7	[illegible]
9	23 42 6.77	[illegible]	1 49 8.6	[illegible]
10	23 43 54.[illegible]	[illegible]	2 3 7.4	[illegible]
11	23 45 42.9[illegible]	[illegible]	2 17 5.1	[illegible]
12	23 47 30.[illegible]	[illegible]	2 31 1.6	[illegible]
13	23 49 1[illegible]	[illegible]	2 44 56.9	[illegible]
14	23 51 6.[illegible]	[illegible]	2 5[illegible]	[illegible]
15	23 52 54.[illegible]	[illegible]	3 12 4[illegible]	[illegible]
16	23 54 4[illegible]	[illegible]	3 2[illegible]	[illegible]
17	23 56 [illegible]	[illegible]	3 40 [illegible]	[illegible]
18	23 58 1[illegible]	[illegible]	3 54 13.5	[illegible]
19	0 0 6.0[illegible]	[illegible]	4 8 0.6	[illegible]
20	0 1 5[illegible]	[illegible]	4 21 4[illegible]	[illegible]
21	0 3 41.54	[illegible]	4 35 [illegible]	[illegible]
22	0 5 29.2[illegible]	[illegible]	4 49 12.6	[illegible]
23	0 7 17.0[illegible]	[illegible]	5 2 53.4	[illegible]
24	0 9 4.[illegible]	[illegible]	N. 5 16 [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	0 9 4.76	1.7957	N. 5 16 32.6	13.639
1	0 10 52.50	1.7958	5 30 10.1	13.610
2	0 12 40.26	1.7961	5 43 45.8	13.580
3	0 14 28.04	1.7965	5 57 19.7	13.550
4	0 16 15.84	1.7968	6 10 51.8	13.519
5	0 18 3.66	1.7972	6 24 22.0	13.488
6	0 19 51.51	1.7978	6 37 50.4	13.456
7	0 21 39.40	1.7984	6 51 16.8	13.423
8	0 23 27.32	1.7990	7 4 41.2	13.390
9	0 25 15.28	1.7997	7 18 3.6	13.357
10	0 27 3.29	1.8006	7 31 24.0	13.322
11	0 28 51.35	1.8015	7 44 42.3	13.287
12	0 30 39.47	1.8024	7 57 58.4	13.251
13	0 32 27.64	1.8034	8 11 12.4	13.215
14	0 34 15.88	1.8046	8 24 24.2	13.177
15	0 36 4.19	1.8058	8 37 33.7	13.139
16	0 37 52.57	1.8070	8 50 40.9	13.101
17	0 39 41.03	1.8083	9 3 45.8	13.062
18	0 41 29.57	1.8097	9 16 48.4	13.023
19	0 43 18.20	1.8111	9 29 48.6	12.982
20	0 45 6.91	1.8126	9 42 46.3	12.941
21	0 46 55.71	1.8142	9 55 41.5	12.899
22	0 48 44.61	1.8159	10 8 34.2	12.857
23	0 50 33.62	1.8177	N.10 21 24.3	12.814

SUNDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	0 52 22.73	1.8194	N.10 34 11.9	12.771
1	0 54 11.95	1.8213	10 46 56.9	12.727
2	0 56 1.29	1.8232	10 59 39.1	12.681
3	0 57 50.74	1.8252	11 12 18.6	12.636
4	0 59 40.31	1.8272	11 24 55.4	12.590
5	1 1 30.01	1.8294	11 37 29.4	12.543
6	1 3 19.84	1.8317	11 50 0.6	12.496
7	1 5 9.81	1.8339	12 2 28.9	12.448
8	1 6 59.91	1.8362	12 14 54.3	12.399
9	1 8 50.15	1.8386	12 27 16.8	12.350
10	1 10 40.54	1.8411	12 39 36.3	12.299
11	1 12 31.08	1.8436	12 51 52.7	12.248
12	1 14 21.77	1.8462	13 4 6.0	12.196
13	1 16 12.62	1.8488	13 16 16.2	12.144
14	1 18 3.63	1.8516	13 28 23.3	12.092
15	1 19 54.81	1.8544	13 40 27.2	12.038
16	1 21 46.16	1.8572	13 52 27.8	11.983
17	1 23 37.68	1.8601	14 4 25.1	11.928
18	1 25 29.37	1.8630	14 16 19.2	11.873
19	1 27 21.24	1.8661	14 28 9.9	11.816
20	1 29 13.30	1.8692	14 39 57.1	11.759
21	1 31 5.54	1.8723	14 51 40.9	11.701
22	1 32 57.97	1.8755	15 3 21.2	11.642
23	1 34 50.60	1.8788	15 14 58.0	11.583
24	1 36 43.43	1.8822	N.15 26 31.2	11.523

MONDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	1 36 43.43	1.8822	N.15 26 31.2	11.523
1	1 38 36.46	1.8855	15 38 0.8	11.462
2	1 40 29.69	1.8889	15 49 26.7	11.401
3	1 42 23.13	1.8924	16 0 48.9	11.339
4	1 44 16.78	1.8960	16 12 7.3	11.276
5	1 46 10.65	1.8996	16 23 22.0	11.212
6	1 48 4.73	1.9032	16 34 32.8	11.147
7	1 49 59.03	1.9069	16 45 39.7	11.082
8	1 51 53.56	1.9107	16 56 42.7	11.017
9	1 53 48.32	1.9146	17 7 41.8	10.951
10	1 55 43.31	1.9184	17 18 36.8	10.883
11	1 57 38.53	1.9223	17 29 27.7	10.814
12	1 59 33.98	1.9262	17 40 14.5	10.745
13	2 1 29.67	1.9303	17 50 57.1	10.676
14	2 3 25.61	1.9344	18 1 35.6	10.606
15	2 5 21.80	1.9385	18 12 9.8	10.534
16	2 7 18.23	1.9426	18 22 39.7	10.461
17	2 9 14.91	1.9468	18 33 5.2	10.388
18	2 11 11.85	1.9511	18 43 26.3	10.315
19	2 13 9.05	1.9554	18 53 43.0	10.240
20	2 15 6.50	1.9597	19 3 55.1	10.164
21	2 17 4.21	1.9641	19 14 2.7	10.088
22	2 19 2.19	1.9686	19 24 5.7	10.011
23	2 21 0.44	1.9730	N.19 34 4.0	9.934

TUESDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	2 22 58.95	1.9774	N.19 43 57.7	9.856
1	2 24 57.73	1.9820	19 53 46.7	9.776
2	2 26 56.79	1.9866	20 3 30.8	9.694
3	2 28 56.13	1.9912	20 13 10.0	9.613
4	2 30 55.74	1.9958	20 22 44.3	9.531
5	2 32 55.63	2.0005	20 32 13.7	9.448
6	2 34 55.80	2.0052	20 41 38.1	9.364
7	2 36 56.26	2.0100	20 50 57.4	9.280
8	2 38 57.00	2.0147	21 0 11.7	9.195
9	2 40 58.03	2.0195	21 9 20.8	9.108
10	2 42 59.34	2.0243	21 18 24.6	9.020
11	2 45 0.95	2.0292	21 27 23.2	8.932
12	2 47 2.85	2.0341	21 36 16.5	8.843
13	2 49 5.04	2.0390	21 45 4.4	8.753
14	2 51 7.53	2.0439	21 53 46.9	8.662
15	2 53 10.31	2.0488	22 2 23.9	8.571
16	2 55 13.39	2.0538	22 10 55.4	8.478
17	2 57 16.77	2.0588	22 19 21.3	8.384
18	2 59 20.45	2.0638	22 27 41.5	8.289
19	3 1 24.43	2.0688	22 35 56.0	8.194
20	3 3 28.71	2.0739	22 44 4.8	8.098
21	3 5 33.30	2.0790	22 52 7.8	8.002
22	3 7 38.19	2.0840	23 0 5.0	7.903
23	3 9 43.38	2.0890	23 7 56.2	7.803
24	3 11 48.87	2.0941	N.23 15 41.4	7.703

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 13.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	3 11 [illegible]	[illegible]	N 23 15 41.4	[illegible]
1	3 13 54.67	0.[illegible]	23 23 [illegible]	[illegible]
2	3 16 0.7[illegible]	[illegible]	23 30 [illegible]	[illegible]
3	3 18 7.19	0.[illegible]	23 3[illegible]	7.[illegible]
4	3 20 13.[illegible]	[illegible]	23 45 41.6	[illegible]
5	3 22 20.[illegible]	0.11[illegible]	23 52 56.2	[illegible]
6	3 24 2[illegible]	0.11[illegible]	24 0 4.5	[illegible]
7	3 26 35.[illegible]	0.1[illegible]	24 7 6.5	[illegible]
8	3 28 43.[illegible]	[illegible]	24 14 2.0	[illegible]
9	3 30 52.[illegible]	[illegible]	24 20 51.0	[illegible]
10	3 33 0.60	0.1[illegible]	24 27 [illegible]	[illegible]
11	3 35 9.45	[illegible]	24 34 9.5	6.[illegible]
12	3 37 1[illegible]	0.1[illegible]	24 40 [illegible]	[illegible]
13	3 3[illegible]	0.[illegible]	24 47 1.4	[illegible]
14	3 41 [illegible]	[illegible]	24 53 17.3	[illegible]
15	3 43 4[illegible]	0.1[illegible]	24 59 2[illegible].4	[illegible]
16	3 45 5[illegible].21	[illegible]	25 5 2[illegible].7	[illegible]
17	3 4[illegible]	[illegible]	25 11 24.0	[illegible]
18	3 50 1[illegible]	[illegible]	25 17 12.3	[illegible]
19	3 52 31.[illegible]	[illegible]	25 22 [illegible]	[illegible]
20	3 54 42.[illegible]	[illegible]	25 2[illegible]	[illegible]
21	3 56 54.[illegible]	[illegible]	25 33 [illegible]	[illegible]
22	3 5[illegible] 6.51	0.[illegible]	25 3[illegible]	[illegible]
23	4 1 1[illegible]	0.[illegible]	N 25 44 [illegible].7	[illegible]

THURSDAY 14.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	4 3 [illegible]	[illegible]	N 25 4[illegible]	[illegible]
1	4 5 [illegible]	[illegible]	[illegible]	[illegible]
2	4 7 [illegible]	[illegible]	[illegible]	[illegible]
3	4 [illegible]	[illegible]	[illegible]	[illegible]
4	4 [illegible]	[illegible]	[illegible]	[illegible]
5	4 [illegible]	[illegible]	[illegible]	[illegible]
6	4 [illegible]	[illegible]	[illegible]	[illegible]
7	4 [illegible]	[illegible]	[illegible]	[illegible]
8	4 [illegible]	[illegible]	[illegible]	[illegible]
9	4 [illegible]	[illegible]	[illegible]	[illegible]
10	4 [illegible]	[illegible]	[illegible]	[illegible]
11	4 [illegible]	[illegible]	[illegible]	[illegible]
12	4 [illegible]	[illegible]	[illegible]	[illegible]
13	4 [illegible]	[illegible]	[illegible]	[illegible]
14	4 [illegible]	[illegible]	[illegible]	[illegible]
15	4 [illegible]	[illegible]	[illegible]	[illegible]
16	4 [illegible]	[illegible]	[illegible]	[illegible]
17	4 [illegible]	[illegible]	[illegible]	[illegible]
18	4 [illegible]	[illegible]	[illegible]	[illegible]
19	4 [illegible]	[illegible]	[illegible]	[illegible]
20	4 [illegible]	[illegible]	[illegible]	[illegible]
21	4 [illegible]	[illegible]	[illegible]	[illegible]
22	4 [illegible]	[illegible]	[illegible]	[illegible]
23	4 [illegible]	[illegible]	[illegible]	[illegible]

FRIDAY 15.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	4 57 54.4[illegible]	[illegible]	N 27 13 [illegible].0	[illegible]
1	5 0 13.29	0.3[illegible]	27 14 55.4	[illegible]
2	5 2 32.31	0.3[illegible]	27 16 34.3	[illegible]
3	5 4 51.52	0.3[illegible]	27 18 4.7	[illegible]
4	5 7 10.91	0.3[illegible]	27 19 2[illegible].6	[illegible]
5	5 9 30.49	[illegible]	27 20 3[illegible]	1.1[illegible]
6	5 11 50.24	[illegible]	27 21 44.4	[illegible]
7	5 14 10.15	[illegible]	27 22 40.4	[illegible]
8	5 16 30.2[illegible]	[illegible]	27 23 2[illegible].6	[illegible]
9	5 18 50.47	[illegible]	27 24 6.1	[illegible]
10	5 21 10.[illegible]	[illegible]	27 24 [illegible]	[illegible]
11	5 23 31.3[illegible]	[illegible]	27 24 5[illegible]	[illegible]
12	5 25 52.[illegible]	[illegible]	27 25 9.1	[illegible]
13	5 2[illegible] 12.[illegible]7	[illegible]	27 25 12.5	[illegible]
14	5 30 [illegible]	[illegible]	27 25 7.0	[illegible]
15	5 32 54.[illegible]7	0.[illegible]	27 24 52.6	[illegible]
16	5 35 1[illegible]	[illegible]	27 24 2[illegible].3	[illegible]
17	5 3[illegible] 3[illegible] 34	[illegible]	27 23 57.1	[illegible]
18	5 [illegible] 5[illegible].74	[illegible]	27 23 15.9	[illegible]
19	5 42 20.[illegible]4	[illegible]	27 22 2[illegible]	[illegible]
20	5 44 41.[illegible]3	[illegible]	27 21 2[illegible].6	[illegible]
21	5 47 3.51	[illegible]	27 20 1[illegible].5	1.[illegible]
22	5 4[illegible] 25.27	[illegible]	27 19 1.4	[illegible]
23	5 51 47.11	[illegible]	N 27 17 35.3	1.[illegible]

SATURDAY 16.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	5 54 9.02	[illegible]	N 27 16 0.1	[illegible]
1	5 5[illegible]	[illegible]	27 14 [illegible]	[illegible]
2	5 5[illegible]	[illegible]	27 12 [illegible]	[illegible]
3	6 1 [illegible]	[illegible]	27 10 [illegible]	[illegible]
4	6 3 [illegible]	[illegible]	[illegible]	[illegible]
5	6 5 [illegible]	[illegible]	[illegible]	[illegible]
6	6 [illegible]	[illegible]	[illegible]	[illegible]
7	6 10 [illegible]	[illegible]	[illegible]	[illegible]
8	6 1[illegible]	[illegible]	[illegible]	[illegible]
9	6 15 [illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]
11	6 [illegible]	[illegible]	[illegible]	[illegible]
12	6 2[illegible]	[illegible]	[illegible]	[illegible]
13	6 [illegible]	[illegible]	[illegible]	[illegible]
14	6 [illegible]	[illegible]	[illegible]	[illegible]
15	6 [illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 17.			
	h m s	s	° ′ ″	″
0	6 51 0.19	2.3625	N.25 52 33.5	5.282
1	6 53 21.90	2.3612	25 47 12.1	5.431
2	6 55 43.54	2.3599	25 41 41.8	5.579
3	6 58 5.09	2.3584	25 36 2.6	5.727
4	7 0 26.55	2.3568	25 30 14.6	5.874
5	7 2 47.91	2.3552	25 24 17.8	6.021
6	7 5 9.17	2.3534	25 18 12.1	6.167
7	7 7 30.32	2.3516	25 11 57.7	6.312
8	7 9 51.36	2.3497	25 5 34.6	6.458
9	7 12 12.29	2.3478	24 59 2.7	6.603
10	7 14 33.10	2.3457	24 52 22.2	6.747
11	7 16 53.78	2.3436	24 45 33.1	6.890
12	7 19 14.33	2.3414	24 38 35.4	7.033
13	7 21 34.75	2.3392	24 31 29.1	7.176
14	7 23 55.03	2.3368	24 24 14.3	7.317
15	7 26 15.17	2.3344	24 16 51.0	7.458
16	7 28 35.16	2.3319	24 9 19.3	7.598
17	7 30 55.00	2.3294	24 1 39.2	7.738
18	7 33 14.69	2.3268	23 53 50.7	7.877
19	7 35 34.23	2.3242	23 45 53.9	8.015
20	7 37 53.60	2.3215	23 37 48.9	8.153
21	7 40 12.81	2.3187	23 29 35.6	8.290
22	7 42 31.85	2.3159	23 21 14.1	8.426
23	7 44 50.72	2.3131	N.23 12 44.5	8.560
	MONDAY 18.			
0	7 47 9.42	2.3102	N.23 4 6.9	8.694
1	7 49 27.95	2.3072	22 55 21.3	8.828
2	7 51 46.29	2.3042	22 46 27.6	8.961
3	7 54 4.45	2.3012	22 37 26.0	9.092
4	7 56 22.43	2.2981	22 28 16.5	9.223
5	7 58 40.22	2.2950	22 18 59.2	9.352
6	8 0 57.83	2.2919	22 9 34.2	9.481
7	8 3 15.25	2.2887	22 0 1.5	9.609
8	8 5 32.47	2.2854	21 50 21.1	9.737
9	8 7 49.49	2.2821	21 40 33.1	9.863
10	8 10 6.32	2.2788	21 30 37.6	9.987
11	8 12 22.95	2.2755	21 20 34.7	10.110
12	8 14 39.38	2.2722	21 10 24.4	10.233
13	8 16 55.61	2.2688	21 0 6.7	10.356
14	8 19 11.64	2.2654	20 49 41.7	10.477
15	8 21 27.46	2.2620	20 39 9.5	10.596
16	8 23 43.08	2.2586	20 28 30.2	10.715
17	8 25 58.49	2.2552	20 17 43.7	10.833
18	8 28 13.70	2.2517	20 6 50.2	10.950
19	8 30 28.70	2.2482	19 55 49.7	11.066
20	8 32 43.49	2.2447	19 44 42.3	11.179
21	8 34 58.07	2.2412	19 33 28.2	11.292
22	8 37 12.44	2.2378	19 22 7.3	11.405
23	8 39 26.61	2.2343	19 10 39.6	11.517
24	8 41 40.56	2.2308	N.18 59 5.3	11.626
	TUESDAY 19.			
	h m s	s	° ′ ″	″
0	8 41 40.56	2.2308	N.18 59 5.3	11.626
1	8 43 54.30	2.2273	18 47 24.5	11.734
2	8 46 7.84	2.2239	18 35 37.2	11.842
3	8 48 21.17	2.2204	18 23 43.5	11.948
4	8 50 34.29	2.2169	18 11 43.4	12.053
5	8 52 47.20	2.2134	17 59 37.1	12.157
6	8 54 59.90	2.2099	17 47 24.6	12.260
7	8 57 12.39	2.2065	17 35 5.9	12.362
8	8 59 24.68	2.2031	17 22 41.2	12.461
9	9 1 36.76	2.1997	17 10 10.6	12.559
10	9 3 48.64	2.1963	16 57 34.1	12.657
11	9 6 0.32	2.1929	16 44 51.7	12.754
12	9 8 11.79	2.1895	16 32 3.6	12.849
13	9 10 23.06	2.1862	16 19 9.8	12.943
14	9 12 34.13	2.1829	16 6 10.4	13.036
15	9 14 45.01	2.1796	15 53 5.5	13.127
16	9 16 55.69	2.1763	15 39 55.2	13.217
17	9 19 6.17	2.1730	15 26 39.4	13.307
18	9 21 16.45	2.1698	15 13 18.3	13.395
19	9 23 26.54	2.1667	14 59 52.0	13.481
20	9 25 36.45	2.1636	14 46 20.6	13.565
21	9 27 46.17	2.1604	14 32 44.2	13.648
22	9 29 55.70	2.1573	14 19 2.8	13.731
23	9 32 5.05	2.1543	N.14 5 16.5	13.812
	WEDNESDAY 20.			
0	9 34 14.22	2.1513	N.13 51 25.4	13.892
1	9 36 23.21	2.1483	13 37 29.5	13.970
2	9 38 32.02	2.1454	13 23 29.0	14.047
3	9 40 40.66	2.1426	13 9 23.9	14.122
4	9 42 49.13	2.1397	12 55 14.3	14.197
5	9 44 57.43	2.1369	12 41 0.2	14.272
6	9 47 5.56	2.1342	12 26 41.8	14.342
7	9 49 13.53	2.1315	12 12 19.1	14.412
8	9 51 21.34	2.1288	11 57 52.3	14.481
9	9 53 28.99	2.1262	11 43 21.4	14.549
10	9 55 36.49	2.1237	11 28 46.4	14.616
11	9 57 43.84	2.1212	11 14 7.5	14.680
12	9 59 51.03	2.1187	10 59 24.8	14.743
13	10 1 58.08	2.1164	10 44 38.3	14.806
14	10 4 4.99	2.1141	10 29 48.1	14.867
15	10 6 11.77	2.1118	10 14 54.3	14.926
16	10 8 18.41	2.1096	9 59 57.0	14.984
17	10 10 24.92	2.1073	9 44 56.2	15.041
18	10 12 31.29	2.1052	9 29 52.1	15.096
19	10 14 37.54	2.1032	9 14 44.7	15.150
20	10 16 43.68	2.1013	8 59 34.1	15.203
21	10 18 49.70	2.0993	8 44 20.3	15.255
22	10 20 55.60	2.0975	8 29 3.5	15.304
23	10 23 1.40	2.0957	8 13 43.8	15.352
24	10 25 7.09	2.0940	N. 7 58 21.3	15.399

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THURSDAY 21.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	10 25 7.09	[illegible]	N. 7 58 21.3	[illegible]
1	10 27 12.?5	[illegible]	7 42 56.0	[illegible]
2	10 29 18.17	[illegible]	7 27 27.9	[illegible]
3	10 31 23.56	[illegible]	7 11 57.2	[illegible]
4	10 33 2?.?7	[illegible]	6 56 24.0	[illegible]
5	10 35 34.09	[illegible]	6 40 48.3	[illegible]
6	10 37 39.23	[illegible]	6 25 10.3	[illegible]
7	10 39 44.29	[illegible]	6 9 30.0	[illegible]
8	10 41 49.25	[illegible]	5 53 47.5	[illegible]
9	10 43 54.20	[illegible]	5 38 2.9	[illegible]
10	10 45 59.05	[illegible]	5 22 16.2	[illegible]
11	10 48 3.85	[illegible]	5 6 27.6	[illegible]
12	10 50 8.59	[illegible]	4 50 37.2	[illegible]
13	10 52 13.28	[illegible]	4 34 45.0	[illegible]
14	10 54 17.92	[illegible]	4 18 51.0	[illegible]
15	10 56 22.52	[illegible]	4 2 55.4	[illegible]
16	10 58 27.08	[illegible]	3 46 58.3	[illegible]
17	11 0 31.60	[illegible]	3 30 59.8	[illegible]
18	11 2 36.09	[illegible]	3 14 59.9	[illegible]
19	11 4 40.56	[illegible]	2 58 57.7	[illegible]
20	11 6 45.01	[illegible]	2 42 56.3	[illegible]
21	11 8 49.44	[illegible]	2 26 52.9	[illegible]
22	11 10 53.86	[illegible]	2 10 48.4	[illegible]
23	11 12 58.28	[illegible]	N. 1 54 42.9	[illegible]

FRIDAY 22.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	11 15 2.6?	[illegible]	N. 1 38 ?6	[illegible]
1	11 17 7.11	[illegible]	1 22 ?5	[illegible]
2	11 19 11.54	[illegible]	1 6 21.7	[illegible]
3	11 21 15.?	[illegible]	0 50 11.3	[illegible]
4	11 23 20.42	[illegible]	0 34 4.4	[illegible]
5	11 25 24.?	[illegible]	0 17 55.1	[illegible]
6	11 27 2?.41	[illegible]	S. 0 1 45.4	[illegible]
7	11 29 [illegible]	[illegible]	S. 0 14 2?	[illegible]
8	11 31 3?.52	[illegible]	0 ?0 [illegible]	[illegible]
9	11 3? 4?.?	[illegible]	0 4? [illegible]	[illegible]
10	11 35 47.79	[illegible]	1 2 55.1	[illegible]
11	11 ?? 52.?	[illegible]	1 19 [illegible]	[illegible]
12	11 ?? 57.?	[illegible]	1 35 15.?	[illegible]
13	11 42 2.10	[illegible]	1 51 [illegible]	[illegible]
14	11 44 7.00	[illegible]	2 7 [illegible]	[illegible]
15	11 46 11.?	[illegible]	2 23 43.5	[illegible]
16	11 48 17.?	[illegible]	2 39 52.?	[illegible]
17	11 50 22.12	[illegible]	2 55 [illegible]	[illegible]
18	11 52 [illegible]	[illegible]	3 12 [illegible]	[illegible]
19	11 54 [illegible]	[illegible]	3 2? [illegible]	[illegible]
20	11 5? [illegible]	[illegible]	3 44 [illegible]	[illegible]
21	11 5? [illegible]	[illegible]	4 0 24.1	[illegible]
22	12 [illegible]	[illegible]	4 16 2?.?	[illegible]
23	12 2 [illegible]	[illegible]	4 32 [illegible]	[illegible]
24	12 [illegible]	[illegible]	S. 4 4? [illegible]	[illegible]

SATURDAY 23.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	12 5 0.65	[illegible]	S. 4 48 31.8	[illegible]
1	12 7 6.59	[illegible]	5 4 31.9	[illegible]
2	12 9 12.66	[illegible]	5 20 30.7	[illegible]
3	12 11 18.86	[illegible]	5 36 28.0	[illegible]
4	12 13 25.19	[illegible]	5 52 23.8	[illegible]
5	12 15 31.66	[illegible]	6 8 18.0	[illegible]
6	12 17 38.28	[illegible]	6 24 10.4	[illegible]
7	12 19 45.05	[illegible]	6 40 1.0	[illegible]
8	12 21 51.97	[illegible]	6 55 49.7	[illegible]
9	12 23 59.05	[illegible]	7 11 36.5	[illegible]
10	12 26 6.29	[illegible]	7 27 21.2	[illegible]
11	12 28 13.70	[illegible]	7 43 3.7	[illegible]
12	12 30 21.29	[illegible]	7 58 44.0	[illegible]
13	12 32 29.06	[illegible]	8 14 22.0	[illegible]
14	12 34 37.01	[illegible]	8 29 57.5	[illegible]
15	12 36 45.14	[illegible]	8 45 30.5	[illegible]
16	12 38 53.46	[illegible]	9 1 0.9	[illegible]
17	12 41 1.95	[illegible]	9 16 28.7	[illegible]
18	12 43 10.71	[illegible]	9 31 53.7	[illegible]
19	12 45 19.64	[illegible]	9 47 15.8	[illegible]
20	12 47 28.78	[illegible]	10 2 35.0	[illegible]
21	12 49 38.14	[illegible]	10 17 51.1	[illegible]
22	12 51 47.72	[illegible]	10 33 4.1	[illegible]
23	12 53 57.52	[illegible]	S. 10 48 13.8	[illegible]

SUNDAY 24.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	12 56 7.54	[illegible]	S. 11 3 20.2	[illegible]
1	12 58 17.?0	[illegible]	11 18 23.2	[illegible]
2	13 0 2?.?0	[illegible]	11 33 22.7	[illegible]
3	13 2 3?.04	[illegible]	11 48 18.7	[illegible]
4	13 4 50.03	[illegible]	12 3 11.0	[illegible]
5	13 7 1.26	[illegible]	12 17 59.5	[illegible]
6	13 9 12.74	[illegible]	12 32 44.1	[illegible]
7	13 11 24.48	[illegible]	12 47 24.8	[illegible]
8	13 13 36.49	[illegible]	13 2 1.4	[illegible]
9	13 15 48.?6	[illegible]	13 16 33.9	[illegible]
10	13 18 1.30	[illegible]	13 31 2.1	[illegible]
11	13 20 14.12	[illegible]	13 45 26.0	[illegible]
12	13 22 27.31	[illegible]	13 59 45.5	[illegible]
13	13 24 40.58	[illegible]	14 14 0.5	[illegible]
14	13 26 54.24	[illegible]	14 28 10.9	[illegible]
15	13 2? ?.19	[illegible]	14 42 16.6	[illegible]
16	13 31 22.42	[illegible]	14 56 17.5	[illegible]
17	13 3? [illegible]	[illegible]	15 10 13.5	[illegible]
18	13 3? 51.78	[illegible]	15 24 4.5	[illegible]
19	13 [illegible]	[illegible]	15 37 50.5	[illegible]
20	13 4? 22.34	[illegible]	15 51 31.3	[illegible]
21	13 42 [illegible]	[illegible]	16 5 6.8	[illegible]
22	13 44 54.13	[illegible]	16 18 3?.?	[illegible]
23	13 47 10.50	[illegible]	16 32 1.6	[illegible]
24	13 4? 27.1?	[illegible]	S. 16 45 2?.?	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 25.			
	h m s	s	° ′ ″	″
0	13 49 27.18	2.2807	S.16 45 20.8	13.272
1	13 51 44.18	2.2860	16 58 34.3	13.177
2	13 54 1.50	2.2913	17 11 42.1	13.082
3	13 56 19.14	2.2967	17 24 44.1	12.984
4	13 58 37.11	2.3022	17 37 40.2	12.884
5	14 0 55.40	2.3076	17 50 30.2	12.783
6	14 3 14.02	2.3131	18 3 14.1	12.681
7	14 5 32.97	2.3187	18 15 51.9	12.577
8	14 7 52.26	2.3242	18 28 23.3	12.470
9	14 10 11.88	2.3298	18 40 48.3	12.362
10	14 12 31.84	2.3355	18 53 6.8	12.254
11	14 14 52.14	2.3411	19 5 18.8	12.144
12	14 17 12.77	2.3467	19 17 24.1	12.032
13	14 19 33.74	2.3524	19 29 22.6	11.918
14	14 21 55.06	2.3581	19 41 14.3	11.803
15	14 24 16.72	2.3638	19 52 59.0	11.687
16	14 26 38.72	2.3696	20 4 36.7	11.568
17	14 29 1.07	2.3753	20 16 7.2	11.448
18	14 31 23.76	2.3811	20 27 30.5	11.327
19	14 33 46.80	2.3868	20 38 46.5	11.204
20	14 36 10.18	2.3925	20 49 55.0	11.079
21	14 38 33.90	2.3982	21 0 56.0	10.953
22	14 40 57.97	2.4040	21 11 49.4	10.827
23	14 43 22.38	2.4097	S.21 22 35.2	10.698
	TUESDAY 26.			
0	14 45 47.13	2.4154	S.21 33 13.2	10.567
1	14 48 12.22	2.4211	21 43 43.3	10.435
2	14 50 37.66	2.4268	21 54 5.4	10.302
3	14 53 3.44	2.4325	22 4 19.5	10.167
4	14 55 29.56	2.4382	22 14 25.5	10.031
5	14 57 56.02	2.4438	22 24 23.2	9.893
6	15 0 22.81	2.4493	22 34 12.6	9.753
7	15 2 49.94	2.4549	22 43 53.6	9.613
8	15 5 17.40	2.4603	22 53 26.1	9.471
9	15 7 45.18	2.4658	23 2 50.1	9.327
10	15 10 13.29	2.4713	23 12 5.4	9.182
11	15 12 41.73	2.4767	23 21 12.0	9.036
12	15 15 10.49	2.4820	23 30 9.7	8.888
13	15 17 39.57	2.4873	23 38 58.5	8.739
14	15 20 8.97	2.4926	23 47 38.4	8.589
15	15 22 38.68	2.4977	23 56 9.2	8.437
16	15 25 8.70	2.5029	24 4 30.9	8.284
17	15 27 39.03	2.5080	24 12 43.3	8.129
18	15 30 9.66	2.5130	24 20 46.4	7.974
19	15 32 40.59	2.5179	24 28 40.2	7.817
20	15 35 11.81	2.5228	24 36 24.5	7.659
21	15 37 43.32	2.5276	24 43 59.3	7.500
22	15 40 15.12	2.5323	24 51 24.5	7.339
23	15 42 47.20	2.5369	24 58 40.0	7.177
24	15 45 19.55	2.5414	S.25 5 45.8	7.015

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 27.			
	h m s	s	° ′ ″	″
0	15 45 19.55	2.5414	S.25 5 45.8	7.015
1	15 47 52.17	2.5459	25 12 41.8	6.851
2	15 50 25.06	2.5503	25 19 27.9	6.686
3	15 52 58.21	2.5546	25 26 4.1	6.520
4	15 55 31.61	2.5587	25 32 30.3	6.352
5	15 58 5.25	2.5628	25 38 46.4	6.184
6	16 0 39.14	2.5668	25 44 52.4	6.015
7	16 3 13.27	2.5707	25 50 48.2	5.845
8	16 5 47.62	2.5744	25 56 33.8	5.674
9	16 8 22.19	2.5780	26 2 9.1	5.502
10	16 10 56.98	2.5815	26 7 34.0	5.329
11	16 13 31.97	2.5848	26 12 48.5	5.155
12	16 16 7.16	2.5881	26 17 52.6	4.981
13	16 18 42.55	2.5913	26 22 46.2	4.805
14	16 21 18.12	2.5943	26 27 29.2	4.629
15	16 23 53.87	2.5972	26 32 1.6	4.452
16	16 26 29.79	2.6000	26 36 23.4	4.274
17	16 29 5.87	2.6027	26 40 34.5	4.095
18	16 31 42.11	2.6052	26 44 34.8	3.916
19	16 34 18.49	2.6075	26 48 24.4	3.737
20	16 36 55.01	2.6097	26 52 3.2	3.556
21	16 39 31.66	2.6118	26 55 31.1	3.375
22	16 42 8.43	2.6137	26 58 48.2	3.194
23	16 44 45.31	2.6156	S.27 1 54.4	3.012
	THURSDAY 28.			
0	16 47 22.30	2.6172	S.27 4 49.7	2.830
1	16 49 59.38	2.6187	27 7 34.0	2.647
2	16 52 36.55	2.6201	27 10 7.4	2.465
3	16 55 13.79	2.6212	27 12 29.8	2.282
4	16 57 51.10	2.6223	27 14 41.2	2.098
5	17 0 28.47	2.6232	27 16 41.5	1.914
6	17 3 5.88	2.6239	27 18 30.8	1.730
7	17 5 43.33	2.6245	27 20 9.1	1.546
8	17 8 20.82	2.6250	27 21 36.3	1.361
9	17 10 58.33	2.6252	27 22 52.4	1.176
10	17 13 35.84	2.6252	27 23 57.4	0.992
11	17 16 13.36	2.6252	27 24 51.4	0.807
12	17 18 50.87	2.6250	27 25 34.3	0.622
13	17 21 28.36	2.6247	27 26 6.1	0.437
14	17 24 5.83	2.6242	27 26 26.8	0.253
15	17 26 43.26	2.6234	27 26 36.5	− 0.069
16	17 29 20.64	2.6226	27 26 35.1	+ 0.115
17	17 31 57.97	2.6216	27 26 22.7	0.298
18	17 34 35.23	2.6203	27 25 59.3	0.482
19	17 37 12.41	2.6190	27 25 24.8	0.666
20	17 39 49.51	2.6176	27 24 39.3	0.849
21	17 42 26.52	2.6159	27 23 42.9	1.032
22	17 45 3.42	2.6141	27 22 35.5	1.215
23	17 47 40.21	2.6122	27 21 17.1	1.397
24	17 50 16.88	2.6101	S.27 19 47.8	1.578

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 29.			
	h m s	s	° ′ ″	″
0	17 50 16.99	[illegible]	S.27 19 47.8	[illegible]
1	17 52 53.42	[illegible]	27 18 7.7	[illegible]
2	17 55 29.82	[illegible]	27 16 16.7	[illegible]
3	17 58 6.06	[illegible]	27 14 14.9	[illegible]
4	18 0 42.14	[illegible]	27 12 2.3	[illegible]
5	18 3 18.06	[illegible]	27 9 39.0	[illegible]
6	18 5 53.80	[illegible]	27 7 4.9	[illegible]
7	18 8 29.35	[illegible]	27 4 20.2	[illegible]
8	18 11 4.71	[illegible]	27 1 24.9	3.010
9	18 13 39.87	[illegible]	26 58 19.0	[illegible]
10	18 16 14.82	[illegible]	26 55 2.6	[illegible]
11	18 18 49.55	[illegible]	26 51 35.7	[illegible]
12	18 21 24.05	[illegible]	26 47 58.4	[illegible]
13	18 23 58.32	[illegible]	26 44 10.7	[illegible]
14	18 26 32.34	[illegible]	26 40 12.7	[illegible]
15	18 29 6.11	[illegible]	26 36 4.5	[illegible]
16	18 31 39.62	[illegible]	26 31 46.1	[illegible]
17	18 34 12.86	[illegible]	26 27 17.5	[illegible]
18	18 36 45.83	[illegible]	26 22 38.9	[illegible]
19	18 39 18.52	[illegible]	26 17 50.3	[illegible]
20	18 41 50.92	[illegible]	26 12 51.7	[illegible]
21	18 44 23.03	[illegible]	26 7 43.2	[illegible]
22	18 46 54.83	[illegible]	26 2 24.9	[illegible]
23	18 49 26.33	[illegible]	S.25 56 56.9	[illegible]
	SATURDAY 30.			
0	18 51 57.51	[illegible]	S.25 51 19.3	[illegible]
1	18 54 28.37	[illegible]	25 45 32.1	[illegible]
2	18 56 58.91	[illegible]	25 39 35.3	[illegible]
3	18 59 29.11	[illegible]	25 33 29.1	[illegible]
4	19 1 58.97	[illegible]	25 27 13.5	[illegible]
5	19 4 28.49	[illegible]	25 20 48.6	[illegible]
6	19 6 57.67	[illegible]	25 14 14.6	[illegible]
7	19 9 26.49	[illegible]	25 7 31.5	[illegible]
8	19 11 54.95	[illegible]	25 0 [illegible]	[illegible]
9	19 14 23.05	[illegible]	24 53 38.1	[illegible]
10	19 16 50.78	[illegible]	24 46 28.0	[illegible]
11	19 19 18.14	[illegible]	24 39 9.2	[illegible]
12	19 21 45.12	[illegible]	24 31 41.7	[illegible]
13	19 24 11.72	[illegible]	24 24 5.6	[illegible]
14	19 26 37.94	[illegible]	24 16 20.9	[illegible]
15	19 29 3.77	[illegible]	24 8 27.8	[illegible]
16	19 31 29.21	[illegible]	24 0 26.4	[illegible]
17	19 33 54.26	[illegible]	23 52 16.7	[illegible]
18	19 36 18.91	[illegible]	23 43 58.8	[illegible]
19	19 38 43.16	[illegible]	23 35 32.8	[illegible]
20	19 41 7.01	[illegible]	23 26 [illegible]	[illegible]
21	19 43 30.45	[illegible]	23 18 17.1	[illegible]
22	19 45 53.48	[illegible]	23 9 27.5	[illegible]
23	19 48 16.10	[illegible]	23 0 30.2	[illegible]
24	19 50 38.32	[illegible]	S.22 51 25.4	[illegible]

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 31.			
	h m s	s	° ′ ″	″
0	19 50 38.32	[illegible]	S.22 51 25.4	[illegible]
1	19 53 0.12	[illegible]	22 42 13.0	[illegible]
2	19 55 21.50	[illegible]	22 32 53.2	[illegible]
3	19 57 42.47	[illegible]	22 23 26.1	[illegible]
4	20 0 3.02	[illegible]	22 13 51.7	[illegible]
5	20 2 23.16	[illegible]	22 4 10.2	[illegible]
6	20 4 42.88	[illegible]	21 54 21.7	[illegible]
7	20 7 2.18	[illegible]	21 44 26.2	[illegible]
8	20 9 21.06	[illegible]	21 34 23.9	[illegible]
9	20 11 39.51	[illegible]	21 24 14.9	[illegible]
10	20 13 57.54	[illegible]	21 13 59.2	[illegible]
11	20 16 15.15	[illegible]	21 3 37.0	[illegible]
12	20 18 32.34	[illegible]	20 53 8.3	[illegible]
13	20 20 49.11	[illegible]	20 42 33.3	[illegible]
14	20 23 5.46	[illegible]	20 31 52.0	[illegible]
15	20 25 21.38	[illegible]	20 21 4.5	[illegible]
16	20 27 36.88	[illegible]	20 10 11.0	[illegible]
17	20 29 51.96	[illegible]	19 59 11.5	[illegible]
18	20 32 6.63	[illegible]	19 48 6.2	[illegible]
19	20 34 20.88	[illegible]	19 36 55.1	[illegible]
20	20 36 34.71	[illegible]	19 25 38.3	[illegible]
21	20 38 48.13	[illegible]	19 14 16.0	[illegible]
22	20 41 1.14	[illegible]	19 2 48.2	[illegible]
23	20 43 13.73	[illegible]	S.18 51 15.0	[illegible]
	MONDAY, FEBRUARY 1.			
0	20 45 25.91	[illegible]	S.18 39 36.4	[illegible]

PHASES OF THE MOON.

		d	h	m
● New Moon	Jan.	2	18	3.4
☽ First Quarter		10	9	45.8
○ Full Moon		18	8	16.9
☾ Last Quarter		25	8	8.6

		d	h
☾ Apogee	Jan.	11	8.3
☾ Perigee		25	3.0

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	IIIh. ° ′ ″	P. L. of Diff.	VIh. ° ′ ″	P. L. of Diff.	IXh. ° ′ ″	P. L. of Diff.
4	Sun	W.	16 3 3	2849	17 36 27	2855	19 9 43	2863	20 42 49	2873
	α Pegasi	E.	54 41 48	2729	53 5 46	2756	51 30 21	2785	49 55 33	2815
	α Arietis	E.	95 55 2	2467	94 13 2	2481	92 31 22	2496	90 50 3	2510
5	Sun	W.	28 24 39	2939	29 56 9	2954	31 27 20	2969	32 58 12	2985
	α Arietis	E.	82 28 38	2587	80 49 25	2602	79 10 33	2618	77 32 3	2634
	Aldebaran	E.	114 19 55	2655	112 42 14	2669	111 4 52	2682	109 27 48	2697
6	Sun	W.	40 27 37	3064	41 56 31	3080	43 25 5	3096	44 53 20	3112
	α Arietis	E.	69 24 54	2714	67 48 33	2729	66 12 32	2745	64 36 52	2761
	Aldebaran	E.	101 27 16	2769	99 52 7	2784	98 17 18	2798	96 42 48	2813
	Mars	E.	105 10 45	2654	103 33 3	2669	101 55 42	2685	100 18 42	2701
7	Sun	W.	52 9 45	3190	53 36 6	3204	55 2 10	3220	56 27 56	3234
	α Arietis	E.	56 43 39	2838	55 10 1	2852	53 36 41	2867	52 3 40	2882
	Aldebaran	E.	88 55 4	2886	87 22 27	2901	85 50 9	2914	84 18 8	2928
	Mars	E.	92 18 52	2777	90 43 54	2791	89 9 14	2805	87 34 53	2820
8	Sun	W.	63 32 38	3302	64 56 47	3313	66 20 43	3325	67 44 25	3338
	Venus	W.	20 46 37	3394	22 9 0	3403	23 31 13	3412	24 53 16	3421
	α Arietis	E.	44 23 11	2953	42 51 59	2965	41 21 3	2979	39 50 24	2992
	Aldebaran	E.	76 42 24	2995	75 12 5	3008	73 42 2	3020	72 12 14	3032
	Mars	E.	79 47 35	2885	78 14 57	2898	76 42 35	2909	75 10 27	2920
9	Sun	W.	74 39 42	3389	76 2 11	3398	77 24 30	3407	78 46 39	3415
	Fomalhaut	W.	39 58 10	3929	41 11 0	3884	42 24 36	3843	43 38 54	3805
	Venus	W.	31 41 2	3463	33 2 7	3471	34 23 3	3479	35 43 51	3486
	Aldebaran	E.	64 46 53	3089	63 18 30	3100	61 50 20	3110	60 22 22	3120
	Mars	E.	67 33 16	2971	66 2 27	2980	64 31 49	2989	63 1 22	2997
	Pollux	E.	106 58 32	3016	105 28 39	3025	103 58 57	3032	102 29 24	3039
10	Sun	W.	85 35 22	3446	86 56 46	3451	88 18 5	3455	89 39 19	3459
	Fomalhaut	W.	49 58 51	3669	51 16 11	3648	52 33 54	3629	53 51 57	3610
	Venus	W.	42 26 1	3515	43 46 9	3519	45 6 12	3523	46 26 11	3525
	Aldebaran	E.	53 5 35	3168	51 38 48	3178	50 12 12	3187	48 45 47	3195
	Mars	E.	55 31 24	3029	54 1 47	3034	52 32 17	3039	51 2 53	3043
	Pollux	E.	95 3 41	3069	93 34 53	3073	92 6 10	3077	90 37 32	3080
11	Sun	W.	96 24 40	3469	97 45 39	3470	99 6 37	3470	100 27 35	3469
	Fomalhaut	W.	60 26 36	3539	61 46 17	3526	63 6 12	3515	64 26 19	3504
	Venus	W.	53 5 24	3535	54 25 10	3535	55 44 55	3535	57 4 41	3534
	α Pegasi	W.	37 52 58	3565	39 12 11	3535	40 31 56	3508	41 52 11	3484
	Aldebaran	E.	41 36 27	3245	40 11 11	3255	38 46 7	3267	37 21 17	3280
	Mars	E.	43 36 57	3057	42 7 55	3058	40 38 54	3060	39 9 55	3060
	Pollux	E.	83 15 12	3090	81 46 50	3091	80 18 29	3091	78 50 8	3090
12	Sun	W.	107 12 49	3458	108 34 0	3454	109 55 16	3450	111 16 36	3445
	Fomalhaut	W.	71 9 57	3452	72 31 15	3443	73 52 43	3433	75 14 22	3423
	Venus	W.	63 43 59	3521	65 4 0	3516	66 24 6	3513	67 44 16	3507
	α Pegasi	W.	48 39 43	3383	50 2 19	3366	51 25 14	3350	52 48 28	3334
	Pollux	E.	71 28 3	3081	69 59 30	3078	68 30 54	3074	67 2 13	3071
	Regulus	E.	108 22 44	3068	106 53 55	3065	105 25 2	3060	103 56 4	3056

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
4	Sun	W.	22 15 43	[illegible]	23 48 22	[illegible]	25 20 45	[illegible]	26 52 51	[illegible]
	α Pegasi	E.	48 21 25	[illegible]	46 47 58	[illegible]	45 15 15	[illegible]	43 43 18	[illegible]
	α Arietis	E.	89 9 4	[illegible]	87 28 26	[illegible]	85 48 9	[illegible]	84 8 13	[illegible]
5	Sun	W.	34 28 44	[illegible]	35 58 57	[illegible]	37 28 50	[illegible]	38 58 23	[illegible]
	α Arietis	E.	75 53 54	[illegible]	74 16 7	[illegible]	72 38 41	[illegible]	71 1 37	[illegible]
	Aldebaran	E.	107 51 4	[illegible]	106 14 38	[illegible]	104 38 32	[illegible]	103 2 44	[illegible]
6	Sun	W.	46 21 15	[illegible]	47 48 51	[illegible]	49 16 8	[illegible]	50 43 6	[illegible]
	α Arietis	E.	63 1 33	[illegible]	61 26 35	[illegible]	59 51 56	[illegible]	58 17 37	[illegible]
	Aldebaran	E.	95 8 37	[illegible]	93 34 46	[illegible]	92 1 13	[illegible]	90 27 59	[illegible]
	Mars	E.	98 42 3	[illegible]	97 5 45	[illegible]	95 29 47	[illegible]	93 54 10	[illegible]
7	Sun	W.	57 53 25	[illegible]	59 18 37	[illegible]	60 43 33	[illegible]	62 8 13	[illegible]
	α Arietis	E.	50 30 58	[illegible]	48 58 35	[illegible]	47 26 29	[illegible]	45 54 41	[illegible]
	Aldebaran	E.	82 46 25	[illegible]	81 14 59	[illegible]	79 43 51	[illegible]	78 12 59	[illegible]
	Mars	E.	86 0 51	[illegible]	84 27 6	[illegible]	82 53 39	[illegible]	81 20 29	[illegible]
8	Sun	W.	69 7 53	[illegible]	70 31 8	[illegible]	71 54 11	[illegible]	73 17 2	[illegible]
	Venus	W.	26 15 9	[illegible]	27 36 52	[illegible]	28 58 25	[illegible]	30 19 48	[illegible]
	α Arietis	E.	38 20 1	[illegible]	36 49 54	[illegible]	35 20 4	[illegible]	33 50 30	[illegible]
	Aldebaran	E.	70 42 41	[illegible]	69 13 23	[illegible]	67 44 19	[illegible]	66 15 29	[illegible]
	Mars	E.	73 35 34	[illegible]	72 6 55	[illegible]	70 35 29	[illegible]	69 4 16	[illegible]
9	Sun	W.	80 8 39	[illegible]	81 30 31	[illegible]	82 52 15	[illegible]	84 13 52	[illegible]
	Fomalhaut	W.	44 53 51	[illegible]	46 9 22	[illegible]	47 25 24	[illegible]	48 41 54	[illegible]
	Venus	W.	37 4 31	[illegible]	38 25 3	[illegible]	39 45 29	[illegible]	41 5 48	[illegible]
	Aldebaran	E.	58 54 37	[illegible]	57 27 4	[illegible]	55 59 43	[illegible]	54 32 33	[illegible]
	Mars	E.	61 31 5	[illegible]	60 0 57	[illegible]	58 30 58	[illegible]	57 1 7	[illegible]
	Pollux	E.	101 0 0	[illegible]	99 30 44	[illegible]	98 1 36	[illegible]	96 32 35	[illegible]
10	Sun	W.	91 0 29	[illegible]	92 21 35	[illegible]	93 42 39	[illegible]	95 3 40	[illegible]
	Fomalhaut	W.	55 10 20	[illegible]	56 29 0	[illegible]	57 47 57	[illegible]	59 7 9	[illegible]
	Venus	W.	47 46 7	[illegible]	49 5 59	[illegible]	50 25 49	[illegible]	51 45 37	[illegible]
	Aldebaran	E.	47 19 32	[illegible]	45 53 25	[illegible]	44 27 36	[illegible]	43 1 55	[illegible]
	Mars	E.	49 33 34	[illegible]	48 4 20	[illegible]	46 39 9	[illegible]	45 6 2	[illegible]
	Pollux	E.	89 8 58	[illegible]	87 40 27	[illegible]	86 12 0	[illegible]	84 43 35	[illegible]
11	Sun	W.	101 48 34	[illegible]	103 9 34	[illegible]	104 30 36	[illegible]	105 51 41	[illegible]
	Fomalhaut	W.	65 46 39	[illegible]	67 7 11	[illegible]	68 27 55	[illegible]	69 48 50	[illegible]
	Venus	W.	58 24 28	[illegible]	59 44 17	[illegible]	61 4 6	[illegible]	62 24 2	[illegible]
	α Pegasi	W.	43 12 53	[illegible]	44 34 1	[illegible]	45 55 33	[illegible]	47 17 27	[illegible]
	Aldebaran	E.	35 56 42	[illegible]	34 32 23	[illegible]	33 8 23	[illegible]	31 44 43	[illegible]
	Mars	E.	37 40 56	[illegible]	36 11 57	[illegible]	34 42 57	[illegible]	33 13 56	[illegible]
	Pollux	E.	77 21 46	[illegible]	75 53 23	[illegible]	74 24 59	[illegible]	72 56 32	[illegible]
12	Sun	W.	112 [illegible] 2	[illegible]	113 59 34	[illegible]	115 21 12	[illegible]	116 42 57	[illegible]
	Fomalhaut	W.	76 36 12	[illegible]	77 58 12	[illegible]	79 20 23	[illegible]	80 42 44	[illegible]
	Venus	W.	69 4 32	[illegible]	70 24 54	[illegible]	71 45 23	[illegible]	73 5 59	[illegible]
	α Pegasi	W.	54 12 0	[illegible]	55 35 49	[illegible]	56 59 56	[illegible]	58 24 19	[illegible]
	Pollux	E.	65 33 [illegible]	[illegible]	64 4 37	[illegible]	62 35 40	[illegible]	61 6 37	[illegible]
	Regulus	E.	102 27 1	[illegible]	100 57 52	[illegible]	99 28 36	[illegible]	97 59 13	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	IIIh. ° ′ ″	P. L. of Diff.	VIh. ° ′ ″	P. L. of Diff.	IXh. ° ′ ″	P. L. of Diff.
13	SUN	W.	118 4 50	3414	119 26 51	3407	120 49 0	3399	122 11 18	3390
	Fomalhaut	W.	82 5 16	3378	83 27 58	3369	84 50 50	3360	86 13 52	3351
	VENUS	W.	74 26 42	3475	75 47 34	3468	77 8 34	3459	78 29 44	3451
	α Pegasi	W.	59 48 58	3262	61 13 54	3249	62 39 5	3236	64 4 32	3222
	Pollux	E.	59 37 27	3044	58 8 9	3039	56 38 44	3032	55 9 11	3025
	Regulus	E.	96 29 43	3028	95 0 5	3021	93 30 18	3014	92 0 22	3006
14	Fomalhaut	W.	93 11 34	3308	94 35 36	3300	95 59 47	3293	97 24 7	3284
	VENUS	W.	85 18 5	3402	86 40 19	3392	88 2 45	3380	89 25 24	3369
	α Pegasi	W.	71 15 42	3158	72 42 42	3144	74 9 58	3131	75 37 30	3119
	α Arietis	W.	27 53 30	3027	29 23 9	3012	30 53 7	2997	32 23 23	2982
	Pollux	E.	47 39 10	2987	46 8 41	2978	44 38 1	2969	43 7 10	2962
	Regulus	E.	84 28 11	2962	82 57 11	2953	81 25 59	2943	79 54 35	2933
	JUPITER	E.	95 31 41	2946	94 0 20	2935	92 28 46	2926	90 57 0	2915
15	VENUS	W.	96 22 0	3308	97 46 2	3296	99 10 18	3282	100 34 50	3270
	α Pegasi	W.	82 59 0	3056	84 28 4	3043	85 57 24	3030	87 26 59	3018
	α Arietis	W.	39 59 16	2912	41 31 19	2898	43 3 40	2885	44 36 18	2871
	Pollux	E.	35 30 17	2920	33 58 23	2911	32 26 18	2903	30 54 3	2897
	Regulus	E.	72 14 14	2879	70 41 28	2867	69 8 27	2855	67 35 11	2843
	JUPITER	E.	83 14 46	2861	81 41 37	2849	80 8 13	2838	78 34 34	2825
16	α Pegasi	W.	94 58 42	2958	96 29 47	2947	98 1 6	2936	99 32 39	2926
	α Arietis	W.	52 23 50	2804	53 58 13	2791	55 32 53	2777	57 7 51	2764
	Aldebaran	W.	22 20 25	3289	23 44 49	3216	25 10 39	3153	26 37 44	3100
	Regulus	E.	59 44 57	2783	58 10 7	2770	56 35 0	2758	54 59 37	2745
	JUPITER	E.	70 42 23	2765	69 7 9	2753	67 31 39	2741	65 55 53	2728
17	α Arietis	W.	65 7 0	2698	66 43 42	2686	68 20 41	2673	69 57 57	2660
	Aldebaran	W.	34 7 28	2904	35 39 42	2875	37 12 33	2848	38 45 59	2822
	MARS	W.	29 51 16	2693	31 28 5	2681	33 5 11	2669	34 42 33	2656
	Regulus	E.	46 58 36	2684	45 21 35	2672	43 44 17	2660	42 6 43	2648
	JUPITER	E.	57 52 56	2667	56 15 32	2655	54 37 51	2643	52 59 54	2632
	Spica	E.	101 1 29	2686	99 24 30	2674	97 47 15	2661	96 9 43	2649
18	α Arietis	W.	78 8 27	2600	79 47 22	2589	81 26 32	2577	83 5 58	2566
	Aldebaran	W.	46 40 47	2716	48 17 5	2698	49 53 47	2681	51 30 52	2665
	MARS	W.	42 53 28	2598	44 32 26	2587	46 11 39	2576	47 51 7	2565
	JUPITER	E.	44 46 17	2575	43 6 48	2565	41 27 5	2555	39 47 8	2545
	Spica	E.	87 57 57	2590	86 18 48	2578	84 39 23	2567	82 59 43	2556
19	α Arietis	W.	91 26 53	2514	93 7 47	2504	94 48 54	2494	96 30 15	2486
	Aldebaran	W.	59 41 31	2593	61 20 36	2580	62 59 59	2568	64 39 38	2556
	MARS	W.	56 12 4	2515	57 52 56	2505	59 34 2	2496	61 15 21	2487
	Spica	E.	74 37 42	2504	72 56 35	2495	71 15 15	2486	69 33 42	2477
	SATURN	E.	110 55 24	2562	109 15 37	2552	107 35 36	2542	105 55 21	2532
20	Aldebaran	W.	73 1 42	2505	74 42 48	2496	76 24 7	2487	78 5 38	2480
	MARS	W.	69 44 53	2448	71 27 20	2440	73 9 58	2431	74 52 46	2426
	Pollux	W.	30 22 10	2480	32 3 52	2467	33 45 51	2456	35 28 6	2445
	Spica	E.	61 2 50	2435	59 20 5	2428	57 37 10	2420	55 54 4	2414
	SATURN	E.	97 30 46	2487	95 49 14	2479	94 7 31	2471	92 25 37	2464

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
13	Sun	W.	123 33 46	[illegible]	124 56 24	[illegible]	126 19 12	[illegible]	127 42 11	[illegible]
	Fomalhaut	W.	87 37 [illegible]	[illegible]	89 0 28	[illegible]	90 24 0	[illegible]	91 47 42	[illegible]
	Venus	W.	79 51 3	[illegible]	81 12 32	[illegible]	82 34 12	[illegible]	83 56 3	[illegible]
	α Pegasi	W.	65 30 15	[illegible]	66 56 13	[illegible]	68 22 27	[illegible]	69 48 57	[illegible]
	Pollux	E.	53 37 29	[illegible]	52 9 39	[illegible]	50 39 39	[illegible]	49 9 29	[illegible]
	Regulus	E.	90 30 17	[illegible]	89 0 2	[illegible]	87 29 36	[illegible]	85 58 59	[illegible]
14	Fomalhaut	W.	98 48 37	[illegible]	100 13 15	[illegible]	101 38 2	[illegible]	103 2 57	[illegible]
	Venus	W.	90 48 16	[illegible]	92 11 21	[illegible]	93 34 40	[illegible]	94 58 13	[illegible]
	α Pegasi	W.	77 5 17	[illegible]	78 33 19	[illegible]	80 1 37	[illegible]	81 30 11	[illegible]
	α Arietis	W.	33 51 58	[illegible]	35 24 51	[illegible]	36 56 2	[illegible]	38 27 30	[illegible]
	Pollux	E.	41 36 9	[illegible]	40 4 57	[illegible]	38 33 34	[illegible]	37 2 1	[illegible]
	Regulus	E.	78 22 58	[illegible]	76 51 8	[illegible]	75 19 4	[illegible]	73 46 46	[illegible]
	Jupiter	E.	89 25 0	[illegible]	87 52 47	[illegible]	86 20 21	[illegible]	84 47 41	[illegible]
15	Venus	W.	101 59 37	[illegible]	103 24 37	[illegible]	104 49 57	[illegible]	106 15 31	[illegible]
	α Pegasi	W.	88 57 50	[illegible]	90 26 55	[illegible]	91 57 16	[illegible]	93 27 52	[illegible]
	α Arietis	W.	46 9 14	[illegible]	47 42 27	[illegible]	49 15 57	[illegible]	50 49 45	[illegible]
	Pollux	E.	29 21 40	[illegible]	27 49 9	[illegible]	26 16 30	[illegible]	24 43 46	[illegible]
	Regulus	E.	66 1 37	[illegible]	64 27 52	[illegible]	62 53 50	[illegible]	61 19 31	[illegible]
	Jupiter	E.	77 0 39	[illegible]	75 26 29	[illegible]	73 52 3	[illegible]	72 17 21	[illegible]
16	α Pegasi	W.	101 4 25	[illegible]	102 36 25	[illegible]	104 8 38	[illegible]	105 41 3	[illegible]
	α Arietis	W.	58 43 6	[illegible]	60 18 38	[illegible]	61 54 20	[illegible]	63 30 15	[illegible]
	Aldebaran	W.	28 5 54	[illegible]	29 35 3	[illegible]	31 5 5	[illegible]	32 35 54	[illegible]
	Regulus	E.	53 23 57	[illegible]	51 48 1	[illegible]	50 11 49	[illegible]	48 35 21	[illegible]
	Jupiter	E.	64 19 50	[illegible]	62 43 31	[illegible]	61 6 56	[illegible]	59 30 4	[illegible]
17	α Arietis	W.	71 35 30	[illegible]	73 13 20	[illegible]	74 51 26	[illegible]	76 29 48	[illegible]
	Aldebaran	W.	40 17 58	[illegible]	41 54 28	[illegible]	43 29 27	[illegible]	45 4 54	[illegible]
	Mars	W.	36 20 12	[illegible]	37 58 7	[illegible]	39 36 18	[illegible]	41 14 45	[illegible]
	Regulus	E.	40 28 53	[illegible]	38 50 47	[illegible]	37 12 25	[illegible]	35 33 48	[illegible]
	Jupiter	E.	51 21 42	[illegible]	49 43 14	[illegible]	48 4 30	[illegible]	46 25 31	[illegible]
	Spica	E.	94 31 54	[illegible]	92 53 49	[illegible]	91 15 25	[illegible]	89 36 50	[illegible]
18	α Arietis	W.	84 45 40	[illegible]	86 25 37	[illegible]	88 5 48	[illegible]	89 46 13	[illegible]
	Aldebaran	W.	53 8 19	[illegible]	54 46 7	[illegible]	56 24 16	[illegible]	58 2 44	[illegible]
	Mars	W.	4[illegible] 30 5[illegible]	[illegible]	51 10 47	[illegible]	52 50 50	[illegible]	54 31 25	[illegible]
	Jupiter	E.	38 6 57	[illegible]	36 26 34	[illegible]	34 45 58	[illegible]	33 5 10	[illegible]
	Spica	E.	81 19 48	[illegible]	79 39 38	[illegible]	77 59 14	[illegible]	76 18 35	[illegible]
19	α Arietis	W.	98 11 48	[illegible]	99 53 34	[illegible]	101 35 32	[illegible]	103 17 41	[illegible]
	Aldebaran	W.	66 17 [illegible]	[illegible]	67 5[illegible] 44	[illegible]	69 40 9	[illegible]	71 20 4[illegible]	[illegible]
	Mars	W.	62 56 52	[illegible]	64 37 35	[illegible]	66 20 30	[illegible]	68 2 56	[illegible]
	Spica	E.	67 51 [illegible]	[illegible]	66 9 57	[illegible]	64 27 46	[illegible]	62 45 24	[illegible]
	Saturn	E.	104 14 52	[illegible]	102 34 9	[illegible]	100 53 14	[illegible]	99 12 6	[illegible]
20	Aldebaran	W.	79 47 2[illegible]	[illegible]	81 29 13	[illegible]	83 11 16	[illegible]	84 53 28	[illegible]
	Mars	W.	[illegible] 35 41	[illegible]	78 18 51	[illegible]	80 2 7	[illegible]	81 45 11	[illegible]
	Pollux	W.	[illegible]	[illegible]	[illegible] 53 20	[illegible]	40 36 17	[illegible]	42 19 27	[illegible]
	Spica	E.	54 10 47	[illegible]	52 27 24	[illegible]	50 43 51	[illegible]	49 0 9	[illegible]
	Saturn	E.	90 43 33	[illegible]	89 1 19	[illegible]	87 18 55	[illegible]	85 36 23	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
21	Aldebaran	W.	86 35 50	2445	88 18 20	2439	90 0 59	2434	91 43 45	2429
	Mars	W.	83 29 3	2396	85 12 43	2391	86 56 30	2387	88 40 24	2382
	Pollux	W.	44 2 48	2402	45 46 20	2395	47 30 2	2388	49 13 54	2382
	Spica	E.	47 16 20	2384	45 32 23	2379	43 48 18	2375	42 4 7	2371
	Saturn	E.	83 53 42	2432	82 10 53	2427	80 27 57	2422	78 44 53	2417
	Antares	E.	93 3 40	2374	91 19 28	2368	89 35 8	2364	87 50 41	2359
22	Pollux	W.	57 55 19	2356	59 39 57	2351	61 24 42	2347	63 9 33	2344
	Regulus	W.	20 53 16	2350	22 38 3	2344	24 22 58	2340	26 7 59	2335
	Saturn	E.	70 8 5	2398	68 24 28	2396	66 40 47	2394	64 57 3	2391
	Antares	E.	79 6 43	2337	77 21 37	2333	75 36 26	2330	73 51 10	2326
23	Pollux	W.	71 55 0	2328	73 40 18	2326	75 25 39	2324	77 11 3	2322
	Regulus	W.	34 54 31	2319	36 40 3	2316	38 25 39	2314	40 11 18	2313
	Jupiter	W.	24 42 24	2326	26 27 45	2320	28 13 15	2314	29 58 54	2309
	Saturn	E.	56 17 48	2387	54 33 54	2387	52 50 0	2387	51 6 7	2388
	Antares	E.	65 3 46	2313	63 18 6	2312	61 32 24	2310	59 46 39	2308
	Sun	E.	120 39 50	2639	119 1 48	2636	117 23 42	2635	115 45 34	2632
24	Pollux	W.	85 58 40	2315	87 44 17	2315	89 29 55	2314	91 15 34	2313
	Regulus	W.	49 0 10	2304	50 46 3	2304	52 31 57	2303	54 17 52	2302
	Jupiter	W.	38 48 42	2292	40 34 53	2289	42 21 8	2288	44 7 25	2286
	Antares	E.	50 57 20	2302	49 11 23	2301	47 25 25	2300	45 39 26	2300
	Sun	E.	107 34 19	2626	105 55 59	2624	104 17 37	2624	102 39 14	2623
25	Regulus	W.	63 7 39	2300	64 53 38	2301	66 39 36	2301	68 25 34	2301
	Jupiter	W.	52 59 21	2281	54 45 48	2281	56 32 16	2281	58 18 44	2280
	Antares	E.	36 49 21	2298	35 3 19	2299	33 17 18	2299	31 31 17	2300
	Sun	E.	94 27 9	2621	92 48 43	2622	91 10 18	2622	89 31 53	2622
26	Regulus	W.	77 15 16	2304	79 1 10	2305	80 47 2	2307	82 32 52	2307
	Jupiter	W.	67 11 6	2281	68 57 33	2282	70 43 59	2283	72 30 23	2284
	Spica	W.	23 19 35	2334	25 4 45	2331	26 49 59	2329	28 35 16	2327
	Sun	E.	81 19 56	2626	79 41 36	2626	78 3 17	2628	76 25 0	2629
27	Regulus	W.	91 21 34	2315	93 7 11	2317	94 52 45	2320	96 38 16	2322
	Jupiter	W.	81 22 0	2291	83 8 13	2293	84 54 23	2295	86 40 30	2297
	Spica	W.	37 22 0	2327	39 7 20	2328	40 52 38	2329	42 37 55	2331
	Sun	E.	68 14 2	2638	66 35 58	2639	64 57 56	2642	63 19 58	2644
28	Jupiter	W.	95 30 14	2311	97 15 58	2313	99 1 38	2317	100 47 13	2320
	Spica	W.	51 23 37	2342	53 8 35	2346	54 53 28	2348	56 38 17	2352
	Sun	E.	55 11 2	2659	53 33 27	2663	51 55 57	2666	50 18 32	2671
29	Spica	W.	65 21 1	2373	67 5 15	2377	68 49 23	2382	70 33 23	2387
	Saturn	W.	28 57 23	2528	30 37 57	2520	32 18 43	2513	33 59 38	2508
	Sun	E.	42 12 54	2693	40 36 5	2699	38 59 24	2705	37 22 51	2710
30	Spica	W.	79 11 22	2418	80 54 31	2425	82 37 30	2432	84 20 19	2440
	Saturn	W.	42 25 10	2506	44 6 15	2509	45 47 16	2512	47 28 13	2516
	Antares	W.	33 19 28	2413	35 2 44	2419	36 45 51	2427	38 28 47	2434
	Sun	E.	29 22 7	2744	27 46 26	2751	26 10 54	2759	24 35 32	2767

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
21	Aldebaran	W.	93 26 35	[illegible]	95 9 38	[illegible]	96 52 43	[illegible]	98 35 54	[illegible]
	Mars	W.	90 24 25	[illegible]	92 8 32	[illegible]	93 52 45	[illegible]	95 37 3	[illegible]
	Pollux	W.	50 57 55	[illegible]	52 42 4	[illegible]	54 26 22	[illegible]	56 10 47	[illegible]
	Spica	E.	40 19 50	[illegible]	38 35 28	[illegible]	36 51 0	[illegible]	35 6 28	[illegible]
	Saturn	E.	77 1 43	[illegible]	75 18 27	[illegible]	73 35 5	[illegible]	71 51 37	[illegible]
	Antares	E.	86 6 7	[illegible]	84 21 26	[illegible]	82 36 38	[illegible]	80 51 43	[illegible]
22	Pollux	W.	64 54 29	[illegible]	66 39 30	[illegible]	68 24 36	[illegible]	70 9 46	[illegible]
	Regulus	W.	27 53 7	[illegible]	29 35 20	[illegible]	31 23 39	[illegible]	33 9 3	[illegible]
	Saturn	E.	63 13 16	[illegible]	61 29 26	[illegible]	59 45 35	[illegible]	58 1 42	[illegible]
	Antares	E.	72 5 49	[illegible]	70 20 24	[illegible]	68 34 55	[illegible]	66 49 22	[illegible]
23	Pollux	W.	78 56 30	[illegible]	80 41 59	[illegible]	82 27 31	[illegible]	84 13 5	[illegible]
	Regulus	W.	41 56 52	[illegible]	43 42 43	[illegible]	45 28 30	[illegible]	47 14 19	[illegible]
	Jupiter	W.	31 44 41	[illegible]	33 30 34	[illegible]	35 16 32	[illegible]	37 2 35	[illegible]
	Saturn	E.	49 22 15	[illegible]	47 38 25	[illegible]	45 54 39	[illegible]	44 10 57	[illegible]
	Antares	E.	58 0 51	[illegible]	56 15 1	[illegible]	54 29 9	[illegible]	52 43 15	[illegible]
	Sun	E.	114 7 23	[illegible]	112 29 10	[illegible]	110 50 55	[illegible]	109 12 38	[illegible]
24	Pollux	W.	93 1 14	[illegible]	94 46 55	[illegible]	96 32 36	[illegible]	98 18 17	[illegible]
	Regulus	W.	56 3 48	[illegible]	57 49 45	[illegible]	59 35 43	[illegible]	61 21 41	[illegible]
	Jupiter	W.	45 53 45	[illegible]	47 40 7	[illegible]	49 26 30	[illegible]	51 12 55	[illegible]
	Antares	E.	43 53 20	[illegible]	42 7 25	[illegible]	40 21 24	[illegible]	38 35 23	[illegible]
	Sun	E.	101 0 50	[illegible]	99 22 25	[illegible]	97 44 0	[illegible]	96 5 35	[illegible]
25	Regulus	W.	70 11 32	[illegible]	71 57 29	[illegible]	73 43 26	[illegible]	75 29 21	[illegible]
	Jupiter	W.	60 5 13	[illegible]	61 51 42	[illegible]	63 38 10	[illegible]	65 24 38	[illegible]
	Antares	E.	29 45 17	[illegible]	27 59 17	[illegible]	26 13 18	[illegible]	24 27 20	[illegible]
	Sun	E.	87 53 25	[illegible]	86 15 4	[illegible]	84 36 40	[illegible]	82 58 17	[illegible]
26	Regulus	W.	84 18 41	[illegible]	86 4 28	[illegible]	87 50 12	[illegible]	89 35 54	[illegible]
	Jupiter	W.	74 16 46	[illegible]	76 3 7	[illegible]	77 49 27	[illegible]	79 35 45	[illegible]
	Spica	W.	30 20 36	[illegible]	32 5 57	[illegible]	33 51 18	[illegible]	35 36 39	[illegible]
	Sun	E.	74 46 44	[illegible]	73 8 30	[illegible]	71 30 18	[illegible]	69 52 9	[illegible]
27	Regulus	W.	98 23 44	[illegible]	100 9 8	[illegible]	101 54 29	[illegible]	103 39 45	[illegible]
	Jupiter	W.	88 26 34	[illegible]	90 12 35	[illegible]	91 58 32	[illegible]	93 44 25	[illegible]
	Spica	W.	44 23 9	[illegible]	46 8 21	[illegible]	47 53 30	[illegible]	49 38 35	[illegible]
	Sun	E.	61 42 3	[illegible]	60 4 12	[illegible]	58 26 25	[illegible]	56 48 41	[illegible]
28	Jupiter	W.	102 32 43	[illegible]	104 18 7	[illegible]	106 3 25	[illegible]	107 48 36	[illegible]
	Spica	W.	58 23 1	[illegible]	60 7 40	[illegible]	61 52 13	[illegible]	63 36 40	[illegible]
	Sun	E.	48 41 13	[illegible]	47 3 59	[illegible]	45 26 51	[illegible]	43 49 49	[illegible]
29	Spica	W.	72 17 16	[illegible]	74 1 0	[illegible]	75 44 36	[illegible]	77 28 4	[illegible]
	Saturn	W.	35 4? 4?	[illegible]	37 21 46	[illegible]	39 2 54	[illegible]	40 44 3	[illegible]
	Sun	E.	35 4? 25	[illegible]	34 10 7	[illegible]	32 33 5?	[illegible]	30 57 58	[illegible]
30	Spica	W.	86 2 57	[illegible]	87 45 25	[illegible]	89 27 41	[illegible]	91 9 46	[illegible]
	Saturn	W.	4? 9 4	[illegible]	50 4? 49	[illegible]	52 30 27	[illegible]	54 10 57	[illegible]
	Antares	W.	40 11 ?3	[illegible]	41 54 6	[illegible]	43 36 31	[illegible]	45 18 43	[illegible]
	Sun	E.	23 0 21	[illegible]	21 25 21	[illegible]	19 50 32	[illegible]	18 15 55	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Mon.	1	21 1 43.02	10.173	S.16 56 4.8	+43.16	16 15.94	68.20	13 52.47	0.315
Tues.	2	21 5 46.76	10.139	16 38 40.0	43.89	16 15.78	68.08	13 59.63	0.281
Wed.	3	21 9 49.67	10.104	16 20 57.8	44.61	16 15.63	67.97	14 5.96	0.247
Thur.	4	21 13 51.76	10.070	16 2 58.6	+45.31	16 15.47	67.86	14 11.48	0.213
Frid.	5	21 17 53.02	10.035	15 44 43.0	45.99	16 15.31	67.74	14 16.17	0.178
Sat.	6	21 21 53.45	10.001	15 26 11.3	46.65	16 15.14	67.63	14 20.04	0.144
SUN.	7	21 25 53.07	9.967	15 7 24.0	+47.29	16 14.98	67.52	14 23.09	0.110
Mon.	8	21 29 51.87	9.933	14 48 21.4	47.91	16 14.81	67.41	14 25.33	0.077
Tues.	9	21 33 49.86	9.899	14 29 4.2	48.52	16 14.63	67.29	14 26.76	0.043
Wed.	10	21 37 47.04	9.866	14 9 32.6	+49.11	16 14.45	67.18	14 27.38	0.010
Thur.	11	21 41 43.43	9.833	13 49 47.0	49.68	16 14.27	67.07	14 27.22	0.023
Frid.	12	21 45 39.04	9.801	13 29 48.0	50.23	16 14.08	66.97	14 26.27	0.055
Sat.	13	21 49 33.88	9.769	13 9 35.8	+50.77	16 13.89	66.86	14 24.56	0.087
SUN.	14	21 53 27.96	9.738	12 49 11.0	51.29	16 13.70	66.76	14 22.09	0.118
Mon.	15	21 57 21.29	9.707	12 28 33.8	51.79	16 13.50	66.65	14 18.88	0.149
Tues.	16	22 1 13.90	9.677	12 7 44.8	+52.28	16 13.29	66.55	14 14.95	0.179
Wed.	17	22 5 5.80	9.648	11 46 44.1	52.76	16 13.08	66.45	14 10.31	0.208
Thur.	18	22 8 57.01	9.620	11 25 32.3	53.22	16 12.87	66.35	14 4.97	0.236
Frid.	19	22 12 47.54	9.592	11 4 9.8	+53.66	16 12.65	66.25	13 58.97	0.264
Sat.	20	22 16 37.42	9.565	10 42 36.8	54.08	16 12.43	66.16	13 52.31	0.291
SUN.	21	22 20 26.65	9.538	10 20 53.9	54.49	16 12.20	66.07	13 45.01	0.317
Mon.	22	22 24 15.26	9.512	9 59 1.4	+54.88	16 11.97	65.98	13 37.08	0.342
Tues.	23	22 28 3.27	9.488	9 36 59.6	55.26	16 11.74	65.89	13 28.56	0.367
Wed.	24	22 31 50.69	9.464	9 14 49.1	55.62	16 11.50	65.80	13 19.45	0.391
Thur.	25	22 35 37.54	9.440	8 52 30.1	+55.96	16 11.26	65.72	13 9.77	0.415
Frid.	26	22 39 23.83	9.418	8 30 3.1	56.28	16 11.02	65.63	12 59.54	0.438
Sat.	27	22 43 9.59	9.396	8 7 28.5	56.59	16 10.78	65.55	12 48.77	0.460
SUN.	28	22 46 54.82	9.374	7 44 46.7	56.88	16 10.53	65.47	12 37.48	0.481
Mon.	29	22 50 39.55	9.353	S. 7 21 58.2	+57.15	16 10.28	65.40	12 25.69	0.502

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Mon.	1	21 1 40.67	10.172	S. 16 56 14.9	+43.15	13 52.39	0.316	20 47 48.28
Tues.	2	21 5 44.40	10.138	16 38 50.3	43.88	13 59.56	0.281	20 51 44.83
Wed.	3	21 9 47.30	10.104	16 21 8.3	44.60	14 5.91	0.247	20 55 41.39
Thur.	4	21 13 49.38	10.070	16 3 9.4	+45.30	14 11.43	0.213	20 59 37.95
Frid.	5	21 17 50.63	10.035	15 44 54.0	45.98	14 16.13	0.179	21 3 34.50
Sat.	6	21 21 51.06	10.001	15 26 22.5	46.64	14 20.00	0.145	21 7 31.06
SUN.	7	21 25 50.68	9.967	15 7 35.4	+47.28	14 23.06	0.111	21 11 27.62
Mon.	8	21 29 49.48	9.933	14 48 33.0	47.90	14 25.31	0.077	21 15 24.17
Tues.	9	21 33 47.47	9.900	14 29 15.9	48.51	14 26.75	0.043	21 19 20.73
Wed.	10	21 37 44.66	9.867	14 9 44.4	+49.10	14 27.38	0.010	21 23 17.28
Thur.	11	21 41 41.06	9.834	13 49 59.1	49.67	14 27.23	0.023	21 27 13.84
Frid.	12	21 45 36.68	9.802	13 30 0.1	50.23	14 26.29	0.055	21 31 10.39
Sat.	13	21 49 31.53	9.770	13 9 48.1	+50.77	14 24.58	0.087	21 35 6.95
SUN.	14	21 53 25.62	9.739	12 49 23.4	51.29	14 22.12	0.118	21 39 3.50
Mon.	15	21 57 18.98	9.708	12 28 46.3	51.79	14 18.92	0.149	21 43 0.06
Tues.	16	22 1 11.61	9.678	12 7 57.2	+52.28	14 14.99	0.179	21 46 56.61
Wed.	17	22 5 3.53	9.649	11 46 56.6	52.75	14 10.30	0.208	21 50 53.17
Thur.	18	22 8 54.75	9.621	11 25 44.9	53.21	14 5.03	0.236	21 54 49.72
Frid.	19	22 12 45.31	9.593	11 4 22.4	+53.66	13 59.03	0.264	21 58 46.28
Sat.	20	22 16 35.21	9.566	10 42 49.4	54.09	13 52.38	0.291	22 2 42.83
SUN.	21	22 20 24.47	9.540	10 21 6.5	54.49	13 45.08	0.317	22 6 39.39
Mon.	22	22 24 13.10	9.514	9 59 13.9	+54.88	13 37.16	0.342	22 10 35.94
Tues.	23	22 28 1.14	9.489	9 37 12.1	55.26	13 28.65	0.367	22 14 32.49
Wed.	24	22 31 48.59	9.465	9 15 1.5	55.62	13 19.54	0.391	22 18 29.05
Thur.	25	22 35 35.47	9.442	8 52 42.5	+55.96	13 9.87	0.415	22 22 25.60
Frid.	26	22 39 21.80	9.419	8 30 15.4	56.29	12 59.64	0.437	22 26 22.16
Sat.	27	22 43 7.58	9.397	8 7 40.7	56.60	12 48.87	0.459	22 30 18.71
SUN.	28	22 46 52.95	9.376	7 44 58.8	56.89	12 37.58	0.481	22 34 15.27
Mon.	29	22 50 37.61	9.355	S. 7 22 10.1	+57.16	12 25.79	0.502	22 38 11.82

Note.—The semi-diameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing.

Diff. for 1 Hour, $+9^s.8565$. (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ′	THE SUN'S Diff. for 1 Hour.	THE SUN'S LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	32	312 57 23.3	57 5.7	152.21	− 0.30	9.9937533	+28.1	3 11 40.23
2	33	313 58 15.8	57 58.1	152.16	0.17	9.9938214	28.6	3 7 44.32
3	34	314 59 7.1	58 49.2	152.11	− 0.03	9.9938907	29.1	3 3 48.41
4	35	315 59 57.1	59 39.1	152.06	+ 0.09	9.9939613	+29.7	2 59 52.50
5	36	317 0 45.8	0 27.6	152.00	0.19	9.9940332	30.2	2 55 56.59
6	37	318 1 33.0	1 14.7	151.94	0.28	9.9941063	30.8	2 52 0.68
7	38	319 2 18.8	2 0.3	151.87	+ 0.34	9.9941809	+31.4	2 48 4.77
8	39	320 3 2.9	2 44.3	151.81	0.37	9.9942571	32.0	2 44 8.86
9	40	321 3 45.4	3 26.7	151.74	0.37	9.9943348	32.7	2 40 12.96
10	41	322 4 26.3	4 7.4	151.67	+ 0.35	9.9944142	+33.4	2 36 17.05
11	42	323 5 5.4	4 46.4	151.59	0.29	9.9944954	34.2	2 32 21.14
12	43	324 5 42.8	5 23.6	151.52	0.21	9.9945785	35.0	2 28 25.23
13	44	325 6 18.6	5 59.3	151.45	+ 0.10	9.9946636	+35.9	2 24 29.32
14	45	326 6 52.7	6 33.3	151.38	− 0.01	9.9947507	36.8	2 20 33.41
15	46	327 7 25.2	7 5.6	151.32	0.14	9.9948399	37.6	2 16 37.50
16	47	328 7 56.0	7 36.3	151.25	− 0.28	9.9949311	+38.5	2 12 41.59
17	48	329 8 25.2	8 5.4	151.19	0.40	9.9950245	39.4	2 8 45.68
18	49	330 8 53.0	8 33.0	151.12	0.52	9.9951200	40.2	2 4 49.77
19	50	331 9 19.2	8 59.1	151.06	− 0.62	9.9952175	+41.0	2 0 53.86
20	51	332 9 44.0	9 23.8	151.00	0.70	9.9953169	41.8	1 56 57.95
21	52	333 10 7.3	9 47.0	150.94	0.76	9.9954182	42.6	1 53 2.05
22	53	334 10 29.1	10 8.7	150.88	− 0.79	9.9955213	+43.2	1 49 6.14
23	54	335 10 49.6	10 29.0	150.82	0.78	9.9956258	43.8	1 45 10.23
24	55	336 11 8.7	10 48.0	150.76	0.74	9.9957317	44.4	1 41 14.32
25	56	337 11 26.3	11 5.5	150.70	− 0.67	9.9958389	+44.9	1 37 18.41
26	57	338 11 42.5	11 21.6	150.64	0.58	9.9959471	45.3	1 33 22.50
27	58	339 11 57.2	11 36.2	150.58	0.47	9.9960562	45.6	1 29 26.59
28	59	340 12 10.3	11 49.1	150.51	0.35	9.9961661	45.9	1 25 30.69
29	60	341 12 21.8	12 0.5	150.44	− 0.22	9.9962767	+46.2	1 21 34.78

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ′ to the mean equinox of January $0^d.0$.

Diff. for 1 Hour, $-9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 38.6	15 33.9	57 17.9	−1.40	57 0.7	−1.46	6		29.2
2	15 29.0	15 24.1	56 43.0	1.49	56 25.0	1.50	0 46.0	1.94	0.7
3	15 19.2	15 14.4	56 7.0	1.49	55 49.3	1.45	1 31.0	1.81	1.7
4	15 9.8	15 5.4	55 32.2	−1.38	55 16.1	−1.29	2 13.4	1.73	2.7
5	15 1.4	14 57.7	55 1.3	1.18	54 48.0	1.03	2 54.5	1.70	3.7
6	14 54.6	14 52.0	54 36.5	0.88	54 26.9	0.70	3 35.4	1.71	4.7
7	14 50.0	14 48.7	54 19.6	−0.51	54 14.7	−0.31	4 17.0	1.76	5.7
8	14 48.0	14 48.0	54 12.2	−0.10	54 12.3	+0.11	5 0.3	1.85	6.7
9	14 48.8	14 50.2	54 15.0	+0.34	54 20.4	0.56	5 46.1	1.97	7.7
10	14 52.4	14 55.3	54 28.5	+0.78	54 39.1	+0.99	6 34.7	2.09	8.7
11	14 58.9	15 3.1	54 52.2	1.19	55 7.6	1.38	7 26.2	2.19	9.7
12	15 7.9	15 13.1	55 25.2	1.54	55 44.6	1.68	8 19.7	2.26	10.7
13	15 18.8	15 24.9	56 5.5	+1.80	56 27.7	+1.88	9 14.1	2.27	11.7
14	15 31.1	15 37.5	56 50.6	1.93	57 13.9	1.94	10 8.1	2.23	12.7
15	15 43.8	15 50.0	57 37.2	1.92	57 59.9	1.85	11 0.7	2.16	13.7
16	15 55.9	16 1.4	58 21.5	+1.74	58 41.7	+1.60	11 51.7	2.09	14.7
17	16 6.3	16 10.6	58 59.9	1.42	59 15.7	1.22	12 41.2	2.04	15.7
18	16 14.2	16 17.1	59 29.0	0.99	59 39.4	0.75	13 30.1	2.04	16.7
19	16 19.1	16 20.4	59 47.0	+0.60	59 51.5	+0.26	14 19.5	2.08	17.7
20	16 20.8	16 20.6	59 53.2	+0.03	59 52.2	−0.19	15 10.5	2.17	18.7
21	16 19.6	16 18.0	59 48.6	−0.39	59 42.8	0.56	16 4.1	2.30	19.7
22	16 15.9	16 13.4	59 35.1	−0.71	59 25.8	0.83	17 0.9	2.43	20.7
23	16 10.5	16 7.2	59 15.1	0.94	59 3.3	1.08	18 0.3	2.51	21.7
24	16 3.8	16 0.2	58 50.7	1.08	58 37.5	1.12	19 1.0	2.53	22.7
25	15 56.5	15 52.7	58 23.9	−1.15	58 9.9	−1.18	20 0.9	2.45	23.7
26	15 48.8	15 44.9	57 55.7	1.19	57 41.3	1.20	20 58.0	2.30	24.7
27	15 41.0	15 37.0	57 26.8	1.21	57 12.2	1.22	21 51.1	2.13	25.7
28	15 33.0	15 29.0	56 57.6	1.22	56 42.9	1.23	22 40.1	1.96	26.7
29	15 25.0	15 21.0	56 28.2	−1.22	56 13.6	−1.22	23 25.6	1.84	27.7

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	20 45 25.91	2.1996	S.18 39 36.4	11.686
1	20 47 37.68	2.1928	18 27 52.7	11.771
2	20 49 49.04	2.1860	18 16 3.9	11.855
3	20 52 0.00	2.1793	18 4 10.1	11.938
4	20 54 10.56	2.1726	17 52 11.4	12.019
5	20 56 20.72	2.1659	17 40 7.8	12.099
6	20 58 30.47	2.1592	17 27 59.5	12.177
7	21 0 39.83	2.1527	17 15 46.6	12.253
8	21 2 48.80	2.1462	17 3 29.1	12.328
9	21 4 57.37	2.1397	16 51 7.2	12.402
10	21 7 5.56	2.1332	16 38 40.9	12.474
11	21 9 13.36	2.1267	16 26 10.3	12.544
12	21 11 20.77	2.1203	16 13 35.6	12.612
13	21 13 27.80	2.1141	16 0 56.8	12.680
14	21 15 34.46	2.1078	15 48 14.0	12.746
15	21 17 40.74	2.1016	15 35 27.3	12.810
16	21 19 46.65	2.0954	15 22 36.8	12.873
17	21 21 52.19	2.0893	15 9 42.5	12.936
18	21 23 57.37	2.0832	14 56 44.5	12.996
19	21 26 2.18	2.0772	14 43 43.0	13.054
20	21 28 6.63	2.0712	14 30 38.0	13.111
21	21 30 10.73	2.0653	14 17 29.7	13.166
22	21 32 14.47	2.0595	14 4 18.1	13.221
23	21 34 17.87	2.0537	S.13 51 3.2	13.274

TUESDAY 2.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	21 36 20.92	2.0480	S.13 37 45.2	13.326
1	21 38 23.63	2.0423	13 24 24.1	13.376
2	21 40 26.00	2.0367	13 11 0.1	13.424
3	21 42 28.03	2.0312	12 57 33.2	13.472
4	21 44 29 74	2.0257	12 44 3.5	13.518
5	21 46 31.12	2.0202	12 30 31.1	13.562
6	21 48 32.17	2.0148	12 16 56.0	13.606
7	21 50 32.90	2.0096	12 3 18.4	13.648
8	21 52 33.32	2.0044	11 49 38.3	13.689
9	21 54 33.43	1.9993	11 35 55.7	13.729
10	21 56 33.23	1.9942	11 22 10.8	13.767
11	21 58 32.73	1.9892	11 8 23.7	13.803
12	22 0 31.93	1.9842	10 54 34.4	13.839
13	22 2 30.83	1.9793	10 40 43.0	13.873
14	22 4 29.44	1.9744	10 26 49.6	13.907
15	22 6 27.76	1.9697	10 12 54.2	13.939
16	22 8 25.80	1.9650	9 58 56.9	13.970
17	22 10 23.56	1.9604	9 44 57.8	13.999
18	22 12 21.05	1.9558	9 30 57.0	14.027
19	22 14 18.26	1.9513	9 16 54.6	14.054
20	22 16 15.21	1.9470	9 2 50.5	14.081
21	22 18 11.90	1.9427	8 48 44.9	14.105
22	22 20 8.33	1.9384	8 34 37.9	14.128
23	22 22 4.51	1.9342	8 20 29.5	14.151
24	22 24 0.43	1.9300	S. 8 6 19.8	14.172

WEDNESDAY 3.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	22 24 0.43	1.9300	S. 8 6 19.8	14.172
1	22 25 56.11	1.9260	7 52 8.8	14.192
2	22 27 51.55	1.9220	7 37 56.7	14.211
3	22 29 46.75	1.9181	7 23 43.5	14.229
4	22 31 41.72	1.9143	7 9 29.2	14.247
5	22 33 36.47	1.9106	6 55 13.9	14.262
6	22 35 30.99	1.9068	6 40 57.8	14.276
7	22 37 25.29	1.9032	6 26 40.8	14.290
8	22 39 19.38	1.8997	6 12 23.0	14.302
9	22 41 13.26	1.8962	5 58 4.5	14.313
10	22 43 6.93	1.8928	5 43 45.4	14.323
11	22 45 0.40	1.8895	5 29 25.7	14.333
12	22 46 53.67	1.8862	5 15 5.4	14.342
13	22 48 46.75	1.8831	5 0 44.7	14.349
14	22 50 39.64	1.8800	4 46 23.6	14.355
15	22 52 32.35	1.8770	4 32 2.1	14.361
16	22 54 24.88	1.8741	4 17 40.3	14.365
17	22 56 17.24	1.8712	4 3 18.3	14.367
18	22 58 9.42	1.8683	3 48 56.2	14.370
19	23 0 1.44	1.8656	3 34 33.9	14.372
20	23 1 53.30	1.8629	3 20 11.6	14.372
21	23 3 44.99	1.8602	3 5 49.3	14.371
22	23 5 36.53	1.8578	2 51 27.1	14.370
23	23 7 27.93	1.8554	S. 2 37 4.9	14.368

THURSDAY 4.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	23 9 19.18	1.8530	S. 2 22 42.9	14.364
1	23 11 10.29	1.8507	2 8 21.2	14.360
2	23 13 1.27	1.8485	1 53 59.7	14.355
3	23 14 52.11	1.8463	1 39 38.6	14.349
4	23 16 42.83	1.8443	1 25 17.8	14.342
5	23 18 33.43	1.8423	1 10 57.5	14.334
6	23 20 23.91	1.8404	0 56 37.7	14.326
7	23 22 14.28	1.8386	0 42 18.4	14.317
8	23 24 4.54	1.8368	0 27 59.7	14.306
9	23 25 54.69	1.8350	S. 0 13 41.7	14.294
10	23 27 44.74	1.8334	N. 0 0 35.6	14.282
11	23 29 34.70	1.8318	0 14 52.2	14.270
12	23 31 24.56	1.8304	0 29 8.0	14.256
13	23 33 14.34	1.8290	0 43 22.9	14.241
14	23 35 4.04	1.8276	0 57 36.9	14.226
15	23 36 53.65	1.8263	1 11 50.0	14.210
16	23 38 43.19	1.8251	1 26 2.1	14.193
17	23 40 32.66	1.8239	1 40 13.2	14.175
18	23 42 22.06	1.8228	1 54 23.1	14.157
19	23 44 11.40	1.8219	2 8 31.9	14.137
20	23 46 0.69	1.8210	2 22 39.5	14.117
21	23 47 49.92	1.8201	2 36 45.9	14.096
22	23 49 39.10	1.8193	2 50 51.0	14.073
23	23 51 28.24	1.8187	3 4 54.7	14.050
24	23 53 17.35	1.8182	N. 3 18 57.0	14.027

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 5.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	23 53 17.35	[illegible]	N. 3 18 57.0	[illegible]
1	23 55 6.42	[illegible]	3 32 5[illegible].9	[illegible]
2	23 56 55.45	[illegible]	3 46 [illegible]	[illegible]
3	23 58 44.45	[illegible]	4 0 55.3	[illegible]
4	0 0 33.43	[illegible]	4 14 51.7	[illegible]
5	0 2 22.39	[illegible]	4 28 46.5	[illegible]
6	0 4 11.34	[illegible]	4 42 3[illegible].6	[illegible]
7	0 6 0.27	[illegible]	4 56 31.0	[illegible]
8	0 7 49.20	[illegible]	5 10 20.7	[illegible]
9	0 9 38.13	[illegible]	5 24 8.6	[illegible]
10	0 11 27.06	[illegible]	5 37 54.6	[illegible]
11	0 13 16.00	[illegible]	5 51 38.8	[illegible]
12	0 15 4.94	[illegible]	6 5 21.1	[illegible]
13	0 16 53.[illegible]	[illegible]	6 19 1.4	[illegible]
14	0 18 42.[illegible]	[illegible]	6 32 39.7	[illegible]
15	0 20 31.[illegible]7	[illegible]	6 46 16.0	[illegible]
16	0 22 [illegible]	[illegible]	6 59 50.2	[illegible]
17	0 24 9.95	[illegible]	7 13 22.2	[illegible]
18	0 25 5[illegible].04	[illegible]	7 26 52.0	[illegible]
19	0 27 48.17	[illegible]	7 40 1[illegible].6	[illegible]
20	0 29 37.34	[illegible]	7 53 45.0	[illegible]
21	0 31 26.55	[illegible]	8 7 8.1	[illegible]
22	0 33 15.81	[illegible]	8 20 28.8	[illegible]
23	0 35 5.13	[illegible]	N. 8 33 47.1	[illegible]

SATURDAY 6.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	0 36 54.51	[illegible]	N. 8 47 3.1	[illegible]
1	0 38 [illegible]	[illegible]	9 0 16.6	[illegible]
2	0 4[illegible] [illegible]	[illegible]	9 13 [illegible]	[illegible]
3	0 42 [illegible]	[illegible]	9 2[illegible] 15.9	[illegible]
4	0 44 12.67	[illegible]	9 [illegible] 41.7	[illegible]
5	0 4[illegible] [illegible]	[illegible]	9 52 44.9	[illegible]
6	0 47 [illegible]	[illegible]	10 5 45.4	[illegible]
7	0 4[illegible] 42.[illegible]	[illegible]	10 18 4.[illegible]	[illegible]
8	0 51 32.07	[illegible]	10 31 [illegible]	[illegible]
9	0 53 22.15	[illegible]	1[illegible] 44 [illegible]	[illegible]
10	0 55 12.[illegible]	[illegible]	10 5[illegible] [illegible]	[illegible]
11	0 57 2.5[illegible]	[illegible]	11 1[illegible] [illegible].4	[illegible]
12	0 5[illegible] 52.[illegible]	[illegible]	11 22 [illegible]	[illegible]
13	1 0 41.44	[illegible]	11 [illegible]	[illegible]
14	1 2 3[illegible]	[illegible]	11 4[illegible] [illegible].1	[illegible]
15	1 4 24.[illegible]4	[illegible]	12 0 4[illegible]	[illegible]
16	1 6 15.57	[illegible]	12 13 14.2	[illegible]
17	1 8 6.42	[illegible]	12 25 42.5	[illegible]
18	1 9 [illegible]	[illegible]	[illegible]	[illegible]
19	1 11 [illegible]	[illegible]	[illegible]	[illegible]
20	1 13 [illegible]	[illegible]	1[illegible] [illegible] 4[illegible].4	[illegible]
21	1 15 [illegible]	[illegible]	1[illegible] 15 [illegible]	[illegible]
22	1 17 [illegible]	[illegible]	13 27 15.9	[illegible]
23	1 1[illegible] [illegible]	[illegible]	13 [illegible] 24.[illegible]	[illegible]
24	1 2[illegible] [illegible]	[illegible]	N. [illegible]	[illegible]

SUNDAY 7.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	1 21 6.89	[illegible]	N. 13 51 29.9	[illegible]
1	1 22 58.94	[illegible]	14 3 31.7	[illegible]
2	1 24 51.15	[illegible]	14 15 30.0	[illegible]
3	1 26 43.52	[illegible]	14 27 24.8	[illegible]
4	1 28 36.05	[illegible]	14 39 16.0	[illegible]
5	1 30 28.74	[illegible]	14 51 3.5	[illegible]
6	1 32 21.60	[illegible]	15 2 47.4	[illegible]
7	1 34 14.63	[illegible]	15 14 27.6	[illegible]
8	1 36 7.83	[illegible]	15 26 4.0	[illegible]
9	1 38 1.21	[illegible]	15 37 36.6	[illegible]
10	1 39 54.77	[illegible]	15 49 5.4	[illegible]
11	1 41 48.52	[illegible]	16 0 30.3	[illegible]
12	1 43 42.45	[illegible]	16 11 51.2	[illegible]
13	1 45 36.5[illegible]	[illegible]	16 23 8.2	[illegible]
14	1 47 30.[illegible]	[illegible]	16 34 21.2	[illegible]
15	1 49 25.39	[illegible]	16 45 30.1	[illegible]
16	1 51 20.10	[illegible]	16 56 34.9	[illegible]
17	1 53 15.01	[illegible]	17 7 35.6	[illegible]
18	1 55 10.12	[illegible]	17 18 32.1	[illegible]
19	1 57 5.44	[illegible]	17 29 24.3	[illegible]
20	1 59 0.97	[illegible]	17 40 12.3	[illegible]
21	2 0 56.71	[illegible]	17 50 56.0	[illegible]
22	2 2 52.67	[illegible]	18 1 35.3	[illegible]
23	2 4 48.85	[illegible]	N. 18 12 10.8	[illegible]

MONDAY 8.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	2 6 45.24	[illegible]	N. 18 22 40.7	[illegible]
1	2 8 41.86	[illegible]	18 33 6.7	[illegible]
2	2 10 38.71	[illegible]	18 43 28.1	[illegible]
3	2 12 35.79	[illegible]	18 53 44.9	[illegible]
4	2 14 33.10	[illegible]	19 3 57.1	[illegible]
5	2 16 3[illegible].64	[illegible]	19 14 4.6	[illegible]
6	2 18 28.41	[illegible]	19 24 7.4	[illegible]
7	2 20 26.42	[illegible]	19 34 5.4	[illegible]
8	2 22 24.6[illegible]	[illegible]	19 43 58.6	[illegible]
9	2 24 23.18	[illegible]	19 53 46.9	[illegible]
10	2 26 21.92	[illegible]	20 3 30.3	[illegible]
11	2 28 20.91	[illegible]	20 13 8.8	[illegible]
12	2 30 20.15	[illegible]	20 22 42.3	[illegible]
13	2 32 1[illegible].64	[illegible]	20 32 10.8	[illegible]
14	2 34 1[illegible].3[illegible]	[illegible]	20 41 34.1	[illegible]
15	2 3[illegible] 1[illegible].3[illegible]	[illegible]	20 50 52.3	[illegible]
16	2 3[illegible] 1[illegible].[illegible]3	[illegible]	21 0 5.3	[illegible]
17	2 4[illegible] [illegible].14	[illegible]	21 9 1[illegible].0	[illegible]
18	2 42 [illegible].91	[illegible]	21 18 15.5	[illegible]
19	2 44 2[illegible].94	[illegible]	21 27 12.6	[illegible]
20	2 46 2[illegible].24	[illegible]	21 36 4.3	[illegible]
21	2 48 24.[illegible]	[illegible]	21 44 50.7	[illegible]
22	2 50 2[illegible].6[illegible]	[illegible]	21 53 31.6	[illegible]
23	2 52 2[illegible].72	[illegible]	22 2 7.0	[illegible]
24	2 54 [illegible]	[illegible]	N. 22 10 [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	2 54 31.08	2.0416	N.22 10 36.7	8.448
1	2 56 33.71	2.0461	22 19 0.8	8.355
2	2 58 36.61	2.0507	22 27 19.3	8.261
3	3 0 39.79	2.0552	22 35 32.1	8.165
4	3 2 43.24	2.0597	22 43 39.1	8.068
5	3 4 46.96	2.0642	22 51 40.2	7.970
6	3 6 50.95	2.0688	22 59 35.5	7.872
7	3 8 55.22	2.0735	23 7 24.9	7.773
8	3 10 59.77	2.0781	23 15 8.3	7.673
9	3 13 4.59	2.0827	23 22 45.7	7.573
10	3 15 9.69	2.0873	23 30 17.0	7.472
11	3 17 15.07	2.0920	23 37 42.3	7.370
12	3 19 20.73	2.0967	23 45 1.4	7.267
13	3 21 26.67	2.1013	23 52 14.3	7.162
14	3 23 32.88	2.1058	23 59 20.9	7.057
15	3 25 39.37	2.1105	24 6 21.2	6.952
16	3 27 46.14	2.1151	24 13 15.1	6.845
17	3 29 53.18	2.1198	24 20 2.6	6.738
18	3 32 0.51	2.1245	24 26 43.7	6.631
19	3 34 8.12	2.1291	24 33 18.3	6.522
20	3 36 16.00	2.1337	24 39 46.3	6.412
21	3 38 24.16	2.1383	24 46 7.7	6.302
22	3 40 32.60	2.1429	24 52 22.5	6.190
23	3 42 41.31	2.1475	N.24 58 30.5	6.078

WEDNESDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	3 44 50.30	2.1521	N.25 4 31.8	5.965
1	3 46 59.56	2.1567	25 10 26.3	5.851
2	3 49 9.10	2.1612	25 16 13.9	5.737
3	3 51 18.91	2.1657	25 21 54.7	5.622
4	3 53 28.99	2.1702	25 27 28.5	5.505
5	3 55 39.34	2.1747	25 32 55.3	5.388
6	3 57 49.96	2.1792	25 38 15.1	5.271
7	4 0 0.84	2.1836	25 43 27.8	5.152
8	4 2 11.99	2.1881	25 48 33.3	5.032
9	4 4 23.41	2.1925	25 53 31.6	4.912
10	4 6 35.09	2.1968	25 58 22.7	4.791
11	4 8 47.03	2.2012	26 3 6.5	4.669
12	4 10 59.23	2.2055	26 7 43.0	4.547
13	4 13 11.69	2.2097	26 12 12.1	4.423
14	4 15 24.40	2.2139	26 16 33.8	4.299
15	4 17 37.36	2.2181	26 20 48.0	4.174
16	4 19 50.57	2.2222	26 24 54.7	4.049
17	4 22 4.03	2.2264	26 28 53.9	3.923
18	4 24 17.74	2.2305	26 32 45.5	3.796
19	4 26 31.69	2.2345	26 36 29.4	3.668
20	4 28 45.88	2.2385	26 40 5.6	3.539
21	4 31 0.31	2.2424	26 43 34.1	3.410
22	4 33 14.97	2.2463	26 46 54.8	3.280
23	4 35 29.86	2.2502	26 50 7.7	3.149
24	4 37 44.99	2.2540	N.26 53 12.7	3.017

THURSDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	4 37 44.99	2.2540	N.26 53 12.7	3.017
1	4 40 0.34	2.2577	26 56 9.8	2.885
2	4 42 15.91	2.2613	26 58 58.9	2.753
3	4 44 31.70	2.2650	27 1 40.1	2.620
4	4 46 47.71	2.2686	27 4 13.3	2.486
5	4 49 3.93	2.2720	27 6 38.4	2.350
6	4 51 20.35	2.2754	27 8 55.3	2.214
7	4 53 36.98	2.2788	27 11 4.1	2.079
8	4 55 53.81	2.2822	27 13 4.8	1.943
9	4 58 10.84	2.2854	27 14 57.3	1.806
10	5 0 28.06	2.2886	27 16 41.5	1.668
11	5 2 45.47	2.2917	27 18 17.4	1.529
12	5 5 3.07	2.2948	27 19 45.0	1.390
13	5 7 20.85	2.2978	27 21 4.2	1.250
14	5 9 38.80	2.3007	27 22 15.0	1.110
15	5 11 56.93	2.3036	27 23 17.4	0.970
16	5 14 15.23	2.3063	27 24 11.4	0.829
17	5 16 33.69	2.3090	27 24 56.9	0.687
18	5 18 52.31	2.3117	27 25 33.8	0.544
19	5 21 11.09	2.3142	27 26 2.2	0.401
20	5 23 30.01	2.3166	27 26 22.0	0.258
21	5 25 49.08	2.3190	27 26 33.2	+ 0.115
22	5 28 8.29	2.3213	27 26 35.8	− 0.029
23	5 30 27.64	2.3236	N.27 26 29.7	0.174

FRIDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	5 32 47.12	2.3257	N.27 26 14.9	0.319
1	5 35 6.72	2.3278	27 25 51.4	0.464
2	5 37 26.45	2.3298	27 25 19.2	0.609
3	5 39 46.30	2.3317	27 24 38.3	0.755
4	5 42 6.26	2.3335	27 23 48.6	0.902
5	5 44 26.32	2.3352	27 22 50.1	1.048
6	5 46 46.49	2.3369	27 21 42.8	1.195
7	5 49 6.75	2.3384	27 20 26.7	1.342
8	5 51 27.10	2.3399	27 19 1.7	1.490
9	5 53 47.54	2.3413	27 17 27.9	1.638
10	5 56 8.06	2.3427	27 15 45.2	1.786
11	5 58 28.66	2.3439	27 13 53.6	1.934
12	6 0 49.33	2.3451	27 11 53.1	2.082
13	6 3 10.07	2.3461	27 9 43.7	2.231
14	6 5 30.86	2.3470	27 7 25.4	2.380
15	6 7 51.71	2.3479	27 4 58.1	2.529
16	6 10 12.61	2.3487	27 2 21.9	2.678
17	6 12 33.55	2.3494	26 59 36.8	2.827
18	6 14 54.54	2.3501	26 56 42.7	2.976
19	6 17 15.56	2.3506	26 53 39.7	3.125
20	6 19 36.61	2.3511	26 50 27.7	3.275
21	6 21 57.69	2.3514	26 47 6.7	3.424
22	6 24 18.78	2.3517	26 43 36.8	3.573
23	6 26 39.89	2.3519	26 39 57.9	3.723
24	6 29 1.01	2.3520	N.26 36 10.0	3.872

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 13.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	6 29 1.01	[illegible]	N 26 36 10.0	[illegible]
1	6 31 22.13	[illegible]	26 32 [illegible]	[illegible]
2	6 33 43.25	[illegible]	26 28 7.4	[illegible]
3	6 36 4.36	[illegible]	26 23 [illegible]	[illegible]
4	6 38 25.46	[illegible]	26 19 [illegible]	[illegible]
5	6 40 46.55	[illegible]	26 14 56.3	[illegible]
6	6 43 7.[illegible]	[illegible]	26 10 14.7	[illegible]
7	6 45 28.66	[illegible]	26 5 24.2	[illegible]
8	6 47 49.67	[illegible]	26 0 24.8	[illegible]
9	6 50 10.64	[illegible]	25 55 16.4	[illegible]
10	6 52 31.57	[illegible]	25 49 [illegible]	[illegible]
11	6 54 52.46	[illegible]	25 44 33.1	[illegible]
12	6 57 13.30	[illegible]	25 38 [illegible]	[illegible]
13	6 59 34.09	[illegible]	25 33 14.4	[illegible]
14	7 1 54.82	[illegible]	25 27 [illegible]	[illegible]
15	7 4 15.48	[illegible]	25 21 20.4	[illegible]
16	7 6 [illegible]	[illegible]	25 15 10.2	[illegible]
17	7 8 [illegible]	[illegible]	25 8 51.3	[illegible]
18	7 11 17.[illegible]	[illegible]	25 2 23.6	[illegible]
19	7 13 37.44	[illegible]	24 55 47.2	[illegible]
20	7 15 [illegible]	[illegible]	24 49 [illegible]	[illegible]
21	7 18 [illegible]	[illegible]	24 42 [illegible]	[illegible]
22	7 20 [illegible]	[illegible]	24 35 [illegible]	[illegible]
23	7 22 [illegible]	[illegible]	N 24 27 [illegible]	[illegible]

SUNDAY 14.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	7 25 17.[illegible]	[illegible]	N 24 20 [illegible]	[illegible]
1	7 27 [illegible]	[illegible]	24 13 [illegible]	[illegible]
2	7 [illegible]	[illegible]	24 5 [illegible]	[illegible]
3	7 [illegible]	[illegible]	[illegible]	[illegible]
4	7 [illegible]	[illegible]	[illegible]	[illegible]
5	7 [illegible]	[illegible]	[illegible]	[illegible]
6	7 [illegible]	[illegible]	[illegible]	[illegible]
7	7 [illegible]	[illegible]	[illegible]	[illegible]
8	7 [illegible]	[illegible]	[illegible]	[illegible]
9	7 [illegible]	[illegible]	[illegible]	[illegible]
10	7 [illegible]	[illegible]	[illegible]	[illegible]
11	7 [illegible]	[illegible]	[illegible]	[illegible]
12	7 [illegible]	[illegible]	[illegible]	[illegible]
13	7 [illegible]	[illegible]	[illegible]	[illegible]
14	7 [illegible]	[illegible]	[illegible]	[illegible]
15	8 [illegible]	[illegible]	[illegible]	[illegible]
16	8 [illegible]	[illegible]	[illegible]	[illegible]
17	8 [illegible]	[illegible]	[illegible]	[illegible]
18	8 [illegible]	[illegible]	[illegible]	[illegible]
19	8 [illegible]	[illegible]	[illegible]	[illegible]
20	8 [illegible]	[illegible]	[illegible]	[illegible]
21	8 [illegible]	[illegible]	21 14 [illegible]	[illegible]
22	8 [illegible]	[illegible]	21 4 [illegible]	[illegible]
23	8 [illegible]	[illegible]	[illegible]	[illegible]
24	8 [illegible]	[illegible]	N [illegible]	[illegible]

MONDAY 15.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	8 20 38.47	[illegible]	N 20 43 27.4	[illegible]
1	8 22 55.01	[illegible]	20 32 46.2	[illegible]
2	8 25 11.38	[illegible]	20 21 57.6	[illegible]
3	8 27 27.59	[illegible]	20 11 1.6	[illegible]
4	8 29 43.64	[illegible]	19 59 58.3	11.119
5	8 31 59.53	[illegible]	19 48 47.8	[illegible]
6	8 34 15.25	[illegible]	19 37 30.1	[illegible]
7	8 36 30.81	[illegible]	19 26 5.3	[illegible]
8	8 38 46.21	[illegible]	19 14 33.4	[illegible]
9	8 41 1.44	[illegible]	19 2 54.5	[illegible]
10	8 43 16.51	[illegible]	18 51 8.6	[illegible]
11	8 45 31.41	[illegible]	18 39 15.9	[illegible]
12	8 47 46.14	[illegible]	18 27 16.4	[illegible]
13	8 50 0.71	[illegible]	18 15 10.1	[illegible]
14	8 52 15.12	[illegible]	18 2 57.8	[illegible]
15	8 54 29.36	[illegible]	17 50 37.7	[illegible]
16	8 56 43.44	[illegible]	17 38 11.6	[illegible]
17	8 58 57.35	[illegible]	17 25 39.1	[illegible]
18	9 1 11.10	[illegible]	17 13 0.8	[illegible]
19	9 3 24.69	[illegible]	17 0 15.0	[illegible]
20	9 5 38.12	[illegible]	16 47 23.5	12.910
21	9 7 51.38	[illegible]	16 34 25.8	[illegible]
22	9 10 4.48	[illegible]	16 21 22.0	13.113
23	9 12 17.43	[illegible]	N 16 8 12.8	[illegible]

TUESDAY 16.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	9 14 30.22	[illegible]	N 15 54 56.5	[illegible]
1	9 16 42.[illegible]	[illegible]	15 41 34.9	[illegible]
2	9 18 [illegible]	[illegible]	15 28 7.4	[illegible]
3	9 21 7.66	[illegible]	15 14 34.2	[illegible]
4	9 23 [illegible]	[illegible]	15 0 55.4	[illegible]
5	9 25 [illegible]	[illegible]	14 47 11.0	[illegible]
6	9 27 [illegible]	[illegible]	14 33 21.1	[illegible]
7	9 29 55.46	[illegible]	14 19 25.8	[illegible]
8	9 32 7.04	[illegible]	14 5 25.1	[illegible]
9	9 34 18.48	[illegible]	13 51 19.2	[illegible]
10	9 36 [illegible]	[illegible]	13 37 8.1	[illegible]
11	9 38 40.[illegible]	[illegible]	13 22 51.9	[illegible]
12	9 40 51.[illegible]	[illegible]	13 8 30.6	[illegible]
13	9 43 2.85	[illegible]	12 54 4.4	[illegible]
14	9 45 13.[illegible]	[illegible]	12 39 33.4	[illegible]
15	9 47 24.22	[illegible]	12 24 57.6	[illegible]
16	9 49 34.[illegible]	[illegible]	12 10 17.1	[illegible]
17	9 51 45.[illegible]	[illegible]	11 55 32.0	[illegible]
18	9 53 55.34	[illegible]	11 40 42.5	[illegible]
19	9 56 5.47	[illegible]	11 25 48.5	[illegible]
20	9 58 15.48	[illegible]	11 10 50.1	[illegible]
21	10 0 25.[illegible]	[illegible]	10 55 47.5	[illegible]
22	10 2 35.17	[illegible]	10 40 40.7	[illegible]
23	10 4 44.[illegible]	[illegible]	10 25 29.8	[illegible]
24	10 6 54.42	[illegible]	N 10 10 15.0	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 17.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	10 6 54.42	2.1587	N.10 10 15.0	15.279
1	10 9 3.89	2.1570	9 54 56.3	15.344
2	10 11 13.26	2.1554	9 39 33.7	15.408
3	10 13 22.54	2.1538	9 24 7.3	15.470
4	10 15 31.72	2.1522	9 8 37.3	15.529
5	10 17 40.81	2.1508	8 53 3.8	15.587
6	10 19 49.82	2.1494	8 37 26.8	15.645
7	10 21 58.74	2.1480	8 21 46.4	15.701
8	10 24 7.58	2.1467	8 6 2.7	15.754
9	10 26 16.35	2.1455	7 50 15.9	15.806
10	10 28 25.04	2.1443	7 34 26.0	15.857
11	10 30 33.66	2.1432	7 18 33.1	15.907
12	10 32 42.22	2.1422	7 2 37.2	15.955
13	10 34 50.72	2.1412	6 46 38.5	16.001
14	10 36 59.16	2.1402	6 30 37.1	16.045
15	10 39 7.54	2.1393	6 14 33.1	16.088
16	10 41 15.87	2.1385	5 58 26.5	16.130
17	10 43 24.16	2.1377	5 42 17.5	16.170
18	10 45 32.4)	2.1371	5 26 6.1	16.209
19	10 47 40.61	2.1365	5 9 52.4	16.246
20	10 49 48.78	2.1359	4 53 36.6	16.281
21	10 51 56.92	2.1354	4 37 18.7	16.315
22	10 54 5.03	2.1350	4 20 58.8	16.347
23	10 56 13.12	2.1347	N. 4 4 37.1	16.377

THURSDAY 18.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	10 58 21.19	2.1344	N. 3 48 13.6	16.406
1	11 0 29.24	2.1342	3 31 48.4	16.433
2	11 2 37.29	2.1341	3 15 21.6	16.459
3	11 4 45.33	2.1340	2 58 53.3	16.483
4	11 6 53.37	2.1340	2 42 23.6	16.506
5	11 9 1.41	2.1340	2 25 52.6	16.527
6	11 11 9.45	2.1342	2 9 20.4	16.546
7	11 13 17.51	2.1344	1 52 47.1	16.563
8	11 15 25.58	2.1347	1 36 12.8	16.579
9	11 17 33.67	2.1351	1 19 37.6	16.593
10	11 19 41.79	2.1355	1 3 1.6	16.607
11	11 21 49.93	2.1359	0 46 24.8	16.618
12	11 23 58.10	2.1365	0 29 47.4	16.627
13	11 26 6.31	2.1372	N. 0 13 9.5	16.635
14	11 28 14.56	2.1379	S. 0 3 28.8	16.641
15	11 30 22.86	2.1387	0 20 7.4	16.645
16	11 32 31.21	2.1396	0 36 46.2	16.648
17	11 34 39.61	2.1405	0 53 25.2	16.650
18	11 36 48.07	2.1416	1 10 4.2	16.649
19	11 38 56.60	2.1427	1 26 43.1	16.647
20	11 41 5.19	2.1438	1 43 21.8	16.642
21	11 43 13.85	2.1450	2 0 0.2	16.637
22	11 45 22.59	2.1463	2 16 38.2	16.630
23	11 47 31.41	2.1477	2 33 15.8	16.622
24	11 49 40.31	2.1491	S. 2 49 52.8	16.611

FRIDAY 19.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	11 49 40.31	2.1491	S. 2 49 52.8	16.611
1	11 51 49.30	2.1507	3 6 29.1	16.598
2	11 53 58.39	2.1523	3 23 4.6	16.584
3	11 56 7.58	2.1541	3 39 39.2	16.569
4	11 58 16.88	2.1558	3 56 12.9	16.552
5	12 0 26.28	2.1576	4 12 45.5	16.532
6	12 2 35.79	2.1595	4 29 16.8	16.511
7	12 4 45.42	2.1615	4 45 46.8	16.489
8	12 6 55.17	2.1636	5 2 15.5	16.466
9	12 9 5.05	2.1657	5 18 42.7	16.440
10	12 11 15.05	2.1678	5 35 8.3	16.418
11	12 13 25.19	2.1701	5 51 32.2	16.383
12	12 15 35.47	2.1725	6 7 54.3	16.352
13	12 17 45.89	2.1749	6 24 14.5	16.320
14	12 19 56.46	2.1774	6 40 32.7	16.285
15	12 22 7.18	2.1799	6 56 48.7	16.249
16	12 24 18.05	2.1826	7 13 2.5	16.212
17	12 26 29.09	2.1853	7 29 14.1	16.173
18	12 28 40.29	2.1881	7 45 23.3	16.132
19	12 30 51.66	2.1909	8 1 29.9	16.088
20	12 33 3.20	2.1938	8 17 33.9	16.044
21	12 35 14.92	2.1968	8 33 35.2	15.998
22	12 37 26.82	2.1999	8 49 33.7	15.950
23	12 39 38.91	2.2030	S. 9 5 29.2	15.900

SATURDAY 20.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	12 41 51.18	2.2062	S. 9 21 21.7	15.849
1	12 44 3.65	2.2095	9 37 11.1	15.797
2	12 46 16.32	2.2128	9 52 57.3	15.742
3	12 48 29.18	2.2161	10 8 40.1	15.685
4	12 50 42.25	2.2196	10 24 19.5	15.627
5	12 52 55.53	2.2231	10 39 55.3	15.567
6	12 55 9.02	2.2266	10 55 27.5	15.506
7	12 57 22.72	2.2303	11 10 56.0	15.442
8	12 59 36.65	2.2340	11 26 20.6	15.377
9	13 1 50.80	2.2378	11 41 41.2	15.310
10	13 4 5.18	2.2416	11 56 57.8	15.242
11	13 6 19.79	2.2454	12 12 10.2	15.172
12	13 8 34.63	2.2493	12 27 18.4	15.100
13	13 10 49.71	2.2533	12 42 22.2	15.027
14	13 13 5.03	2.2573	12 57 21.6	14.952
15	13 15 20.59	2.2614	13 12 16.4	14.875
16	13 17 36.40	2.2656	13 27 6.6	14.797
17	13 19 52.46	2.2698	13 41 52.0	14.716
18	13 22 8.78	2.2741	13 56 32.5	14.634
19	13 24 25.35	2.2784	14 11 8.1	14.551
20	13 26 42.18	2.2827	14 25 38.6	14.465
21	13 28 59.28	2.2871	14 40 3.9	14.378
22	13 31 16.64	2.2915	14 54 24.0	14.290
23	13 33 34.26	2.2959	15 8 38.7	14.200
24	13 35 52.15	2.3005	S.15 22 48.0	14.108

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 21.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	13 35 52.15	[illegible]	S.15 22 48.0	[illegible]
1	13 38 10.32	[illegible]	15 36 51.7	[illegible]
2	13 40 28.76	[illegible]	15 50 49.7	[illegible]
3	13 42 47.47	[illegible]	16 4 42.0	[illegible]
4	13 45 6.46	[illegible]	16 18 28.4	[illegible]
5	13 47 25.73	[illegible]	16 32 8.8	[illegible]
6	13 49 45.29	[illegible]	16 45 43.2	[illegible]
7	13 52 5.13	[illegible]	16 59 11.4	[illegible]
8	13 54 25.25	[illegible]	17 12 33.4	[illegible]
9	13 56 45.66	[illegible]	17 25 49.0	[illegible]
10	13 59 6.36	[illegible]	17 38 58.2	[illegible]
11	14 1 27.35	[illegible]	17 52 0.9	[illegible]
12	14 3 48.63	[illegible]	18 4 56.9	[illegible]
13	14 6 10.20	[illegible]	18 17 46.2	[illegible]
14	14 8 32.07	[illegible]	18 30 28.6	[illegible]
15	14 10 54.23	[illegible]	18 43 4.1	[illegible]
16	14 13 16.69	[illegible]	18 55 32.6	[illegible]
17	14 15 39.44	[illegible]	19 7 54.0	[illegible]
18	14 18 2.48	[illegible]	19 20 8.2	[illegible]
19	14 20 25.82	[illegible]	19 32 15.1	[illegible]
20	14 22 49.46	[illegible]	19 44 14.6	[illegible]
21	14 25 13.39	[illegible]	19 56 6.5	[illegible]
22	14 27 37.62	[illegible]	20 7 50.9	[illegible]
23	14 30 2.15	[illegible]	S.20 19 27.7	[illegible]

MONDAY 22.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	14 32 26.97	[illegible]	S.20 30 56.7	[illegible]
1	14 34 52.09	[illegible]	20 42 17.9	[illegible]
2	14 37 17.50	[illegible]	20 53 31.1	[illegible]
3	14 39 43.20	[illegible]	21 4 36.3	[illegible]
4	14 42 9.19	[illegible]	21 15 33.4	[illegible]
5	14 44 35.48	[illegible]	21 26 22.4	[illegible]
6	14 47 2.06	[illegible]	21 37 3.1	[illegible]
7	14 49 28.92	[illegible]	21 47 35.4	[illegible]
8	14 51 56.07	[illegible]	21 57 59.3	[illegible]
9	14 54 23.51	[illegible]	22 8 14.7	[illegible]
10	14 56 51.23	[illegible]	22 18 21.5	[illegible]
11	14 59 19.23	[illegible]	22 28 19.6	[illegible]
12	15 1 47.51	[illegible]	22 38 [illegible]	[illegible]
13	15 4 [illegible]	[illegible]	22 47 4[illegible].4	[illegible]
14	15 6 44.[illegible]	[illegible]	22 57 21.0	[illegible]
15	15 9 13.[illegible]	[illegible]	23 6 41.6	[illegible]
16	15 11 43.15	[illegible]	23 15 57.1	[illegible]
17	15 14 12.[illegible]	[illegible]	23 2[illegible] [illegible]1.5	[illegible]
18	15 16 42.[illegible]	[illegible]	23 33 5[illegible].7	[illegible]
19	15 19 13.[illegible]	[illegible]	23 42 42.6	[illegible]
20	15 21 41.40	[illegible]	23 51 1[illegible].1	[illegible]
21	15 24 14.[illegible]	[illegible]	23 59 4[illegible].3	[illegible]
22	15 26 44.[illegible]3	[illegible]	24 8 4.0	[illegible]
23	15 29 1[illegible]	[illegible]	24 16 12.1	[illegible]
24	15 31 47.4[illegible]	[illegible]	S.24 24 1[illegible].6	[illegible]

TUESDAY 23.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	15 31 47.43	[illegible]	S.24 24 10.6	[illegible]
1	15 34 19.03	[illegible]	24 31 59.4	[illegible]
2	15 36 50.86	[illegible]	24 39 38.5	[illegible]
3	15 39 22.91	[illegible]	24 47 7.8	[illegible]
4	15 41 55.18	[illegible]	24 54 27.2	[illegible]
5	15 44 27.66	[illegible]	25 1 36.7	[illegible]
6	15 47 0.35	[illegible]	25 8 36.2	[illegible]
7	15 49 33.24	[illegible]	25 15 25.6	[illegible]
8	15 52 6.33	[illegible]	25 22 5.0	[illegible]
9	15 54 39.60	[illegible]	25 28 34.3	[illegible]
10	15 57 13.05	[illegible]	25 34 53.4	[illegible]
11	15 59 46.69	[illegible]	25 41 2.2	[illegible]
12	16 2 20.50	[illegible]	25 47 0.8	[illegible]
13	16 4 54.47	[illegible]	25 52 49.0	[illegible]
14	16 7 28.60	[illegible]	25 58 26.9	[illegible]
15	16 10 2.89	[illegible]	26 3 54.4	[illegible]
16	16 12 37.32	[illegible]	26 9 11.4	[illegible]
17	16 15 11.89	[illegible]	26 14 17.9	[illegible]
18	16 17 46.59	[illegible]	26 19 14.0	[illegible]
19	16 20 21.42	[illegible]	26 23 59.5	[illegible]
20	16 22 56.36	[illegible]	26 28 34.4	[illegible]
21	16 25 31.41	[illegible]	26 32 58.6	[illegible]
22	16 28 6.57	[illegible]	26 37 12.2	[illegible]
23	16 30 41.82	[illegible]	S.26 41 15.1	[illegible]

WEDNESDAY 24.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	16 33 17.15	[illegible]	S.26 45 7.4	[illegible]
1	16 35 52.56	[illegible]	26 48 48.9	[illegible]
2	16 38 28.05	[illegible]	26 52 19.7	[illegible]
3	16 41 3.60	[illegible]	26 55 39.7	[illegible]
4	16 43 39.21	[illegible]	26 58 48.9	[illegible]
5	16 46 14.87	[illegible]	27 1 47.4	[illegible]
6	16 48 50.56	[illegible]	27 4 35.1	[illegible]
7	16 51 26.29	[illegible]	27 7 11.9	[illegible]
8	16 54 2.03	[illegible]	27 9 37.9	[illegible]
9	16 56 37.80	[illegible]	27 11 53.1	[illegible]
10	16 59 13.57	[illegible]	27 13 57.4	[illegible]
11	17 1 49.34	[illegible]	27 15 50.9	[illegible]
12	17 4 25.09	[illegible]	27 17 33.6	[illegible]
13	17 7 0.82	[illegible]	27 19 5.4	[illegible]
14	17 9 36.53	[illegible]	27 20 26.4	[illegible]
15	17 12 12.21	[illegible]	27 21 36.5	[illegible]
16	17 14 47.84	[illegible]	27 22 35.8	[illegible]
17	17 17 23.42	[illegible]	27 23 24.4	[illegible]
18	17 19 58.94	[illegible]	27 24 2.1	[illegible]
19	17 22 34.19	[illegible]	27 24 29.0	[illegible]
20	17 25 9.76	[illegible]	27 24 45.2	[illegible]
21	17 27 45.04	[illegible]	27 24 50.6	− [illegible]
22	17 30 20.23	[illegible]	27 24 45.3	+ [illegible]
23	17 32 55.32	[illegible]	27 24 29.2	[illegible]
24	17 35 [illegible]	[illegible]	S.27 24 [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 25.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	17 35 30.29	2.5818	S.27 24 2.4	0.536
1	17 38 5.14	2.5798	27 23 24.9	0.713
2	17 40 39.87	2.5777	27 22 36.8	0.890
3	17 43 14.46	2.5753	27 21 38.1	1.067
4	17 45 48.90	2.5728	27 20 28.8	1.243
5	17 48 23.19	2.5702	27 19 9.0	1.419
6	17 50 57.32	2.5674	27 17 38.6	1.594
7	17 53 31.28	2.5646	27 15 57.7	1.768
8	17 56 5.07	2.5616	27 14 6.4	1.942
9	17 58 38.67	2.5584	27 12 4.7	2.115
10	18 1 12.08	2.5552	27 9 52.6	2.287
11	18 3 45.29	2.5518	27 7 30.2	2.458
12	18 6 18.30	2.5484	27 4 57.6	2.629
13	18 8 51.10	2.5447	27 2 14.7	2.800
14	18 11 23.67	2.5409	26 59 21.6	2.969
15	18 13 56.01	2.5370	26 56 18.4	3.138
16	18 16 28.11	2.5331	26 53 5.1	3.306
17	18 18 59.98	2.5291	26 49 41.7	3.473
18	18 21 31.60	2.5248	26 46 8.3	3.639
19	18 24 2.96	2.5205	26 42 25.0	3.804
20	18 26 34.06	2.5162	26 38 31.8	3.967
21	18 29 4.90	2.5117	26 34 28.9	4.130
22	18 31 35.46	2.5070	26 30 16.2	4.292
23	18 34 5.74	2.5023	S.26 25 53.8	4.454

FRIDAY 26.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	18 36 35.74	2.4976	S.26 21 21.7	4.615
1	18 39 5.45	2.4927	26 16 40.0	4.773
2	18 41 34.86	2.4876	26 11 48.9	4.930
3	18 44 3.96	2.4825	26 6 48.4	5.087
4	18 46 32.76	2.4773	26 1 38.5	5.243
5	18 49 1.24	2.4720	25 56 19.2	5.398
6	18 51 29.40	2.4667	25 50 50.7	5.551
7	18 53 57.24	2.4613	25 45 13.1	5.703
8	18 56 24.75	2.4558	25 39 26.4	5.854
9	18 58 51.94	2.4503	25 33 30.6	6.004
10	19 1 18.79	2.4447	25 27 25.9	6.152
11	19 3 45.30	2.4389	25 21 12.4	6.299
12	19 6 11.46	2.4331	25 14 50.0	6.446
13	19 8 37.27	2.4272	25 8 18.9	6.590
14	19 11 2.73	2.4214	25 1 39.2	6.733
15	19 13 27.84	2.4155	24 54 50.9	6.876
16	19 15 52.59	2.4094	24 47 54.1	7.017
17	19 18 16.97	2.4033	24 40 48.9	7.156
18	19 20 40.99	2.3972	24 33 35.4	7.294
19	19 23 4.64	2.3911	24 26 13.6	7.432
20	19 25 27.92	2.3849	24 18 43.6	7.567
21	19 27 50.83	2.3787	24 11 5.6	7.700
22	19 30 13.36	2.3724	24 3 19.6	7.833
23	19 32 35.52	2.3662	23 55 25.6	7.966
24	19 34 57.30	2.3598	S.23 47 23.7	8.096

SATURDAY 27.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	19 34 57.30	2.3598	S.23 47 23.7	8.096
1	19 37 18.70	2.3534	23 39 14.1	8.224
2	19 39 39.71	2.3469	23 30 56.8	8.351
3	19 42 0.33	2.3404	23 22 32.0	8.477
4	19 44 20.56	2.3340	23 13 59.6	8.602
5	19 46 40.41	2.3276	23 5 19.8	8.724
6	19 48 59.87	2.3211	22 56 32.7	8.846
7	19 51 18.94	2.3146	22 47 38.3	8.967
8	19 53 37.62	2.3080	22 38 36.7	9.085
9	19 55 55.90	2.3014	22 29 28.1	9.202
10	19 58 13.79	2.2949	22 20 12.5	9.317
11	20 0 31.29	2.2884	22 10 50.0	9.432
12	20 2 48.40	2.2818	22 1 20.6	9.546
13	20 5 5.11	2.2752	21 51 44.5	9.657
14	20 7 21.43	2.2687	21 42 1.7	9.767
15	20 9 37.36	2.2622	21 32 12.4	9.876
16	20 11 52.90	2.2557	21 22 16.6	9.983
17	20 14 8.04	2.2491	21 12 14.4	10.089
18	20 16 22.79	2.2426	21 2 5.9	10.193
19	20 18 37.15	2.2361	20 51 51.2	10.297
20	20 20 51.12	2.2295	20 41 30.3	10.398
21	20 23 4.69	2.2230	20 31 3.4	10.498
22	20 25 17.88	2.2166	20 20 30.5	10.597
23	20 27 30.68	2.2101	S.20 9 51.7	10.694

SUNDAY 28.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	20 29 43.09	2.2037	S.19 59 7.2	10.789
1	20 31 55.12	2.1972	19 48 17.0	10.883
2	20 34 6.76	2.1908	19 37 21.2	10.977
3	20 36 18.02	2.1844	19 26 19.8	11.069
4	20 38 28.89	2.1781	19 15 12.9	11.159
5	20 40 39.39	2.1718	19 4 0.7	11.247
6	20 42 49.51	2.1655	18 52 43.3	11.334
7	20 44 59.25	2.1593	18 41 20.7	11.420
8	20 47 8.62	2.1531	18 29 52.9	11.505
9	20 49 17.62	2.1469	18 18 20.1	11.587
10	20 51 26.25	2.1407	18 6 42.4	11.669
11	20 53 34.51	2.1346	17 54 59.8	11.749
12	20 55 42.40	2.1285	17 43 12.5	11.827
13	20 57 49.93	2.1225	17 31 20.5	11.905
14	20 59 57.10	2.1165	17 19 23.9	11.982
15	21 2 3.91	2.1105	17 7 22.7	12.057
16	21 4 10.36	2.1046	16 55 17.1	12.130
17	21 6 16.46	2.0987	16 43 7.1	12.202
18	21 8 22.21	2.0929	16 30 52.9	12.272
19	21 10 27.61	2.0872	16 18 34.5	12.342
20	21 12 32.67	2.0814	16 6 11.9	12.410
21	21 14 37.38	2.0757	15 53 45.3	12.477
22	21 16 41.76	2.0701	15 41 14.7	12.542
23	21 18 45.80	2.0646	15 28 40.3	12.605
24	21 20 49.51	2.0591	S.15 16 2.1	12.667

GREENWICH MEAN TIME.

PHASES OF THE MOON.

		d	h	m
● New Moon	Feb.	1	8	13.3
☽ First Quarter		9	7	25.2
○ Full Moon		16	22	11.0
☾ Last Quarter		23	15	43.6

		d	h
☾ Apogee	Feb.	8	5.5
☾ Perigee		20	1.5

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
2	SUN	W.	7 58 41	2993	9 29 2	3005	10 59 8	3018	12 28 58	3031
	VENUS	E.	38 9 4	3043	36 39 45	3057	35 10 43	3072	33 41 59	3087
	α Arietis	E.	74 26 23	2659	72 48 48	2672	71 11 30	2684	69 34 28	2695
	Aldebaran	E.	106 25 12	2719	104 48 58	2730	103 12 58	2741	101 37 13	2752
3	SUN	W.	19 54 5	3097	21 22 18	3111	22 50 14	3124	24 17 55	3138
	α Arietis	E.	61 33 27	2760	59 58 6	2772	58 23 1	2785	56 48 13	2798
	Aldebaran	E.	93 42 12	2811	92 7 58	2823	90 34 0	2835	89 0 18	2847
	MARS	E.	98 34 40	2811	97 0 26	2824	95 26 29	2837	93 52 49	2850
4	SUN	W.	31 32 19	3203	32 58 25	3215	34 24 16	3228	35 49 52	3241
	α Arietis	E.	48 58 32	2864	47 25 27	2876	45 52 38	2890	44 20 6	2903
	Aldebaran	E.	81 15 45	2910	79 43 39	2922	78 11 48	2935	76 40 13	2946
	MARS	E.	86 8 36	2912	84 36 33	2925	83 4 46	2938	81 33 15	2950
5	SUN	W.	42 54 17	3300	44 18 29	3310	45 42 29	3321	47 6 16	3332
	α Arietis	E.	36 41 37	2969	35 10 46	2983	33 40 12	2997	32 9 56	3011
	Aldebaran	E.	69 6 10	3008	67 36 7	3021	66 6 20	3032	64 36 47	3044
	MARS	E.	73 59 22	3007	72 29 18	3018	70 59 27	3029	69 29 50	3039
	Pollux	E.	111 21 12	2942	109 49 46	2951	108 18 32	2962	106 47 31	2970
6	SUN	W.	54 2 14	3380	55 24 53	3388	56 47 23	3397	58 9 43	3404
	Aldebaran	E.	57 12 40	3102	55 44 33	3114	54 16 41	3125	52 49 2	3138
	MARS	E.	62 4 47	3087	60 36 21	3094	59 8 4	3102	57 39 57	3110
	Pollux	E.	99 15 14	3014	97 45 18	3022	96 15 32	3029	94 45 55	3036
7	SUN	W.	64 59 25	3436	66 21 1	3441	67 42 31	3446	69 3 56	3450
	α Pegasi	W.	34 15 27	3639	35 33 19	3604	36 51 49	3572	38 10 54	3543
	VENUS	W.	18 55 36	3528	20 15 29	3525	21 35 26	3523	22 55 25	3520
	Aldebaran	E.	45 34 20	3197	44 8 7	3209	42 42 8	3221	41 16 24	3236
	MARS	E.	50 21 35	3143	48 54 17	3148	47 27 6	3153	46 0 0	3158
	Pollux	E.	87 19 50	3065	85 50 58	3069	84 22 11	3074	82 53 30	3078
8	SUN	W.	75 50 3	3463	77 11 9	3463	78 32 14	3464	79 53 18	3463
	α Pegasi	W.	44 53 22	3435	46 14 59	3418	47 36 55	3403	48 59 8	3388
	VENUS	W.	29 35 48	3514	30 55 57	3512	32 16 8	3510	33 36 21	3508
	MARS	E.	38 45 41	3173	37 18 59	3174	35 52 19	3176	34 25 41	3176
	Pollux	E.	75 31 1	3090	74 2 39	3091	72 34 19	3091	71 5 59	3092
	Regulus	E.	112 26 41	3078	110 58 4	3078	109 29 28	3078	108 0 52	3078
9	SUN	W.	86 38 56	3454	88 0 11	3452	89 21 29	3447	90 42 52	3444
	α Pegasi	W.	55 54 6	3325	57 17 48	3314	58 41 43	3303	60 5 51	3291
	VENUS	W.	40 18 9	3492	41 38 42	3487	42 59 21	3482	44 20 5	3476
	Pollux	E.	63 44 14	3086	62 15 47	3083	60 47 17	3080	59 18 43	3077
	Regulus	E.	100 37 39	3070	99 8 53	3068	97 40 4	3064	96 11 10	3060
10	SUN	W.	97 31 12	3413	98 53 14	3405	100 15 25	3397	101 37 45	3388
	α Pegasi	W.	67 9 48	3236	68 35 14	3225	70 0 53	3214	71 26 46	3203
	VENUS	W.	51 5 31	3441	52 27 1	3431	53 48 40	3423	55 10 30	3415
	Pollux	E.	51 54 39	3053	50 25 32	3047	48 56 17	3040	47 26 54	3034
	Regulus	E.	88 45 13	3032	87 15 40	3025	85 45 58	3018	84 16 7	3009
	JUPITER	E.	97 10 52	2993	95 40 30	29[illegible]	94 9 59	29[illegible]	92 39 19	2970

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
2	Sun	W.	13 58 32	[illegible]	15 27 50	[illegible]	16 56 51	[illegible]	18 25 36	[illegible]
	Venus	E.	32 13 31	[illegible]	30 45 25	[illegible]	29 17 37	3111	27 50 8	[illegible]
	α Arietis	E.	67 57 42	[illegible]	66 21 13	[illegible]	64 45 1	[illegible]	63 9 6	[illegible]
	Aldebaran	E.	100 1 42	[illegible]	98 26 26	[illegible]	96 51 26	[illegible]	95 16 41	[illegible]
3	Sun	W.	25 45 19	[illegible]	27 12 27	[illegible]	28 39 20	3177	30 5 57	[illegible]
	α Arietis	E.	55 13 43	[illegible]	53 39 30	[illegible]	52 5 34	[illegible]	50 32 55	[illegible]
	Aldebaran	E.	87 26 51	[illegible]	85 53 41	[illegible]	84 20 46	[illegible]	82 48 8	[illegible]
	Mars	E.	92 19 26	[illegible]	90 40 19	[illegible]	89 13 29	[illegible]	87 40 55	[illegible]
4	Sun	W.	37 15 13	[illegible]	38 40 20	[illegible]	40 5 13	[illegible]	41 29 52	[illegible]
	α Arietis	E.	42 47 51	[illegible]	41 15 52	[illegible]	39 44 10	[illegible]	38 12 45	[illegible]
	Aldebaran	E.	75 8 53	[illegible]	73 37 49	[illegible]	72 7 1	[illegible]	70 36 28	[illegible]
	Mars	E.	80 1 59	[illegible]	78 30 58	[illegible]	77 0 12	[illegible]	75 29 40	[illegible]
5	Sun	W.	48 29 50	[illegible]	49 53 13	[illegible]	51 16 24	[illegible]	52 39 24	[illegible]
	α Arietis	E.	30 39 57	[illegible]	29 10 17	[illegible]	27 40 55	[illegible]	26 11 52	[illegible]
	Aldebaran	E.	63 7 29	[illegible]	61 38 25	[illegible]	60 9 36	[illegible]	58 41 1	[illegible]
	Mars	E.	68 0 25	[illegible]	66 31 13	[illegible]	65 2 13	[illegible]	63 33 24	[illegible]
	Pollux	E.	105 16 41	[illegible]	103 46 3	[illegible]	102 15 36	[illegible]	100 45 20	[illegible]
6	Sun	W.	59 31 55	[illegible]	60 53 58	[illegible]	62 15 54	[illegible]	63 37 43	[illegible]
	Aldebaran	E.	51 21 38	[illegible]	49 54 27	[illegible]	48 27 31	[illegible]	47 0 48	[illegible]
	Mars	E.	56 12 0	[illegible]	54 44 12	[illegible]	53 16 32	[illegible]	51 49 0	[illegible]
	Pollux	E.	93 16 27	[illegible]	91 47 7	[illegible]	90 17 54	[illegible]	88 48 49	[illegible]
7	Sun	W.	70 25 16	[illegible]	71 46 32	[illegible]	73 7 45	[illegible]	74 28 55	[illegible]
	α Pegasi	W.	39 30 31	[illegible]	40 50 37	[illegible]	42 11 9	[illegible]	43 32 5	[illegible]
	Venus	W.	24 15 27	[illegible]	25 35 30	[illegible]	26 55 35	[illegible]	28 15 41	[illegible]
	Aldebaran	E.	39 50 57	[illegible]	38 25 47	[illegible]	37 0 54	[illegible]	35 36 20	[illegible]
	Mars	E.	44 33 0	[illegible]	43 6 4	[illegible]	41 39 13	[illegible]	40 12 25	[illegible]
	Pollux	E.	81 24 53	[illegible]	79 56 20	[illegible]	78 27 51	[illegible]	76 59 25	[illegible]
8	Sun	W.	81 14 23	[illegible]	82 35 29	[illegible]	83 56 56	[illegible]	85 17 45	[illegible]
	α Pegasi	W.	50 21 38	[illegible]	51 44 23	[illegible]	53 7 23	[illegible]	54 30 37	[illegible]
	Venus	W.	34 56 36	[illegible]	36 16 54	[illegible]	37 37 15	[illegible]	38 57 40	[illegible]
	Mars	E.	32 59 3	[illegible]	31 32 26	[illegible]	30 5 49	[illegible]	28 39 11	[illegible]
	Pollux	E.	69 37 40	[illegible]	68 9 21	[illegible]	66 41 0	[illegible]	65 12 38	[illegible]
	Regulus	E.	106 32 16	[illegible]	105 3 39	[illegible]	103 35 1	[illegible]	102 6 21	[illegible]
9	Sun	W.	92 4 19	[illegible]	93 25 52	[illegible]	94 47 32	[illegible]	96 9 18	[illegible]
	α Pegasi	W.	61 30 13	[illegible]	62 54 48	[illegible]	64 19 35	[illegible]	65 44 35	[illegible]
	Venus	W.	45 40 56	[illegible]	47 1 53	[illegible]	48 22 58	[illegible]	49 44 10	[illegible]
	Pollux	E.	57 50 5	[illegible]	56 21 22	[illegible]	54 52 34	[illegible]	53 23 40	[illegible]
	Regulus	E.	94 42 11	[illegible]	93 13 7	[illegible]	91 43 56	[illegible]	90 14 38	[illegible]
10	Sun	W.	103 0 15	[illegible]	104 22 56	[illegible]	105 45 47	[illegible]	107 8 50	[illegible]
	α Pegasi	W.	72 52 52	[illegible]	74 19 12	[illegible]	75 45 46	[illegible]	77 12 34	[illegible]
	Venus	W.	56 32 [illegible]	[illegible]	57 54 41	[illegible]	59 17 4	[illegible]	60 39 40	[illegible]
	Pollux	E.	45 5[illegible] [illegible]	[illegible]	44 27 43	[illegible]	42 57 54	[illegible]	41 27 56	[illegible]
	Regulus	E.	82 46 [illegible]	[illegible]	81 15 55	[illegible]	79 45 32	[illegible]	78 14 58	[illegible]
	Jupiter	E.	91 8 2[illegible]	[illegible]	89 37 28	[illegible]	88 6 16	[illegible]	86 34 53	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
11	SUN	W.	108 32 5	3338	109 55 33	3326	111 19 14	3314	112 43 9	[illegible]
	α Pegasi	W.	78 39 36	3143	80 6 53	3131	81 34 25	3119	83 2 11	3106
	VENUS	W.	62 2 28	3360	63 25 30	3349	64 48 45	3336	66 12 15	3323
	α Arietis	W.	35 31 38	3004	37 1 46	2991	38 32 10	2977	40 2 51	2963
	Pollux	E.	39 57 48	2996	38 27 30	2988	36 57 2	2979	35 26 23	2971
	Regulus	E.	76 44 11	2963	75 13 12	2953	73 42 0	2942	72 10 34	2931
	JUPITER	E.	85 3 17	2924	83 31 29	2913	81 59 27	2902	80 27 11	2891
12	α Pegasi	W.	90 24 56	3043	91 54 16	3029	93 23 53	3016	94 53 46	3003
	VENUS	W.	73 13 39	3253	74 38 46	3238	76 4 10	3222	77 29 53	3207
	α Arietis	W.	47 40 40	2893	49 13 8	2879	50 45 54	2864	52 18 59	2848
	Regulus	E.	64 29 41	2869	62 56 42	2855	61 23 26	2842	59 49 52	2828
	JUPITER	E.	72 42 9	2831	71 8 21	2817	69 34 15	2804	67 59 52	2790
13	VENUS	W.	84 43 12	3125	86 10 51	3108	87 38 51	3091	89 7 12	3073
	α Arietis	W.	60 9 20	2772	61 44 25	2756	63 19 51	2740	64 55 38	2724
	Aldebaran	W.	29 26 46	3047	30 56 0	3005	32 26 6	2968	33 56 59	2933
	MARS	W.	20 32 42	2867	22 5 43	2850	23 39 6	2833	25 12 51	2816
	Regulus	E.	51 57 27	2756	50 22 1	2740	48 46 14	2725	47 10 7	2710
	JUPITER	E.	60 3 22	2719	58 27 7	2704	56 50 32	2689	55 13 37	2674
14	α Arietis	W.	72 59 52	2643	74 37 48	2628	76 16 5	2611	77 54 45	2596
	Aldebaran	W.	41 41 41	2785	43 16 28	2761	44 51 47	2737	46 27 38	2713
	MARS	W.	33 7 6	2732	34 43 3	2716	36 19 22	2699	37 56 3	2684
	Regulus	E.	39 4 24	2632	37 26 12	2617	35 47 40	2601	34 8 46	2586
	JUPITER	E.	47 3 57	2599	45 25 0	2583	43 45 42	2569	42 6 4	2553
	Spica	E.	93 7 32	2632	91 29 21	2617	89 50 49	2601	88 11 55	2585
15	α Arietis	W.	86 13 28	2517	87 54 17	2502	89 35 28	2487	91 16 59	2472
	Aldebaran	W.	54 34 22	2608	56 13 6	2588	57 52 17	2570	59 31 53	2551
	MARS	W.	46 4 51	2604	47 43 41	2588	49 22 52	2573	51 2 24	2559
	Spica	E.	79 52 3	2507	78 11 0	2493	76 29 37	2478	74 47 53	2463
16	Aldebaran	W.	67 55 57	2470	69 37 53	2454	71 20 11	2440	73 2 49	2426
	MARS	W.	59 25 6	2487	61 6 37	2475	62 48 26	2461	64 30 34	2449
	Pollux	W.	25 15 8	2460	26 57 17	2438	28 39 57	2419	30 23 5	2401
	Spica	E.	66 14 8	2394	64 30 25	2381	62 46 23	2368	61 2 3	2356
	SATURN	E.	104 11 5	2436	102 28 21	[illegible]	100 45 17	2408	99 1 54	2396
17	Aldebaran	W.	81 40 38	2365	83 25 3	2355	85 9 43	2344	86 54 38	2335
	MARS	W.	73 5 26	2392	74 49 12	2382	76 33 12	2373	78 17 26	2364
	Pollux	W.	39 4 40	2326	40 50 1	2314	42 35 40	2302	44 21 36	2292
	Spica	E.	52 16 10	2308	50 30 13	2298	48 44 2	2283	46 57 37	2274
	SATURN	E.	90 20 36	2338	88 35 32	2328	86 50 13	2319	85 4 41	2309
	Antares	E.	98 4 8	2293	96 17 58	2283	94 31 34	2274	92 44 56	2264
18	Aldebaran	W.	95 42 18	2298	97 28 21	2291	99 14 33	2287	101 0 52	2283
	MARS	W.	87 1 39	2326	88 47 1	2320	90 32 32	2313	92 18 12	2309
	Pollux	W.	53 14 54	2247	55 2 12	2240	56 49 40	2233	58 37 19	2227
	Spica	E.	38 2 42	2240	36 15 14	2235	34 27 39	2231	32 39 57	2227
	SATURN	E.	76 13 56	2272	74 27 16	2267	72 40 28	2262	70 53 32	2257
	Antares	E.	83 48 36	[illegible]	82 0 47	[illegible]	80 12 49	2214	78 24 42	[illegible]

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
11	Sun	W.	114 7 18	[illegible]	115 31 42	[illegible]	116 56 21	[illegible]	118 21 16	[illegible]
	α Pegasi	W.	84 30 13	[illegible]	85 58 31	[illegible]	87 27 3	[illegible]	88 55 52	[illegible]
	Venus	W.	67 36 0	[illegible]	69 0 1	[illegible]	70 24 17	[illegible]	71 48 50	[illegible]
	α Arietis	W.	41 33 50	[illegible]	43 5 6	[illegible]	44 36 39	[illegible]	46 8 30	[illegible]
	Pollux	E.	33 55 34	[illegible]	32 24 35	[illegible]	30 53 26	[illegible]	29 22 7	[illegible]
	Regulus	E.	70 38 54	[illegible]	69 6 59	[illegible]	67 34 49	[illegible]	66 2 23	[illegible]
	Jupiter	E.	78 54 41	[illegible]	77 21 56	[illegible]	75 48 56	[illegible]	74 15 41	[illegible]
12	α Pegasi	W.	96 23 55	[illegible]	97 54 20	[illegible]	99 25 2	[illegible]	100 56 0	[illegible]
	Venus	W.	78 55 54	[illegible]	80 22 14	[illegible]	81 48 54	[illegible]	83 15 53	[illegible]
	α Arietis	W.	53 52 24	[illegible]	55 26 8	[illegible]	57 0 12	[illegible]	58 34 36	[illegible]
	Regulus	E.	58 16 0	[illegible]	56 42 50	[illegible]	55 7 21	[illegible]	53 32 34	[illegible]
	Jupiter	E.	66 25 11	[illegible]	64 50 12	[illegible]	63 14 54	[illegible]	61 39 18	[illegible]
13	Venus	W.	90 35 54	[illegible]	92 4 57	[illegible]	93 34 22	[illegible]	95 4 8	[illegible]
	α Arietis	W.	66 31 41	[illegible]	68 8 15	[illegible]	69 45 6	[illegible]	71 22 18	[illegible]
	Aldebaran	W.	35 28 36	[illegible]	37 0 55	[illegible]	38 33 53	[illegible]	40 7 29	[illegible]
	Mars	W.	26 46 58	[illegible]	28 21 27	[illegible]	29 56 18	[illegible]	31 31 31	[illegible]
	Regulus	E.	45 33 40	[illegible]	43 56 52	[illegible]	42 19 44	[illegible]	40 42 14	[illegible]
	Jupiter	E.	53 36 22	[illegible]	51 58 46	[illegible]	50 20 50	[illegible]	48 42 34	[illegible]
14	α Arietis	W.	79 33 46	[illegible]	81 13 9	[illegible]	82 52 54	[illegible]	84 33 0	[illegible]
	Aldebaran	W.	48 4 1	[illegible]	49 40 53	[illegible]	51 18 15	[illegible]	52 56 5	[illegible]
	Mars	W.	39 33 5	[illegible]	41 10 29	[illegible]	42 48 15	[illegible]	44 26 22	[illegible]
	Regulus	E.	32 23 32	[illegible]	30 49 57	[illegible]	29 10 1	[illegible]	27 29 45	[illegible]
	Jupiter	E.	40 26 5	[illegible]	38 45 46	[illegible]	37 5 8	[illegible]	35 24 10	[illegible]
	Spica	E.	86 32 40	[illegible]	84 53 3	[illegible]	83 13 4	[illegible]	81 32 44	[illegible]
15	α Arietis	W.	92 58 51	[illegible]	94 41 4	[illegible]	96 23 36	[illegible]	98 6 28	[illegible]
	Aldebaran	W.	61 11 55	[illegible]	62 52 21	[illegible]	64 33 10	[illegible]	66 14 22	[illegible]
	Mars	W.	52 42 16	[illegible]	54 22 29	[illegible]	56 3 8	[illegible]	57 43 54	[illegible]
	Spica	E.	73 5 48	[illegible]	71 23 22	[illegible]	69 40 37	[illegible]	67 57 32	[illegible]
16	Aldebaran	W.	74 45 46	[illegible]	76 29 2	[illegible]	78 12 37	[illegible]	79 56 29	[illegible]
	Mars	W.	66 12 53	[illegible]	67 55 41	[illegible]	69 38 40	[illegible]	71 21 55	[illegible]
	Pollux	W.	32 6 3[illegible]	[illegible]	33 50 37	[illegible]	35 34 57	[illegible]	37 19 38	[illegible]
	Spica	E.	59 17 25	[illegible]	57 32 30	[illegible]	55 47 19	[illegible]	54 1 52	[illegible]
	Saturn	E.	97 18 13	[illegible]	95 34 14	[illegible]	93 49 58	[illegible]	92 5 25	[illegible]
17	Aldebaran	W.	88 39 46	[illegible]	90 25 7	[illegible]	92 10 40	[illegible]	93 56 24	[illegible]
	Mars	W.	80 1 51	[illegible]	81 46 33	[illegible]	83 31 24	[illegible]	85 16 26	[illegible]
	Pollux	W.	46 7 47	[illegible]	47 54 13	[illegible]	49 40 54	[illegible]	51 27 48	[illegible]
	Spica	E.	45 11 0	[illegible]	43 24 11	[illegible]	41 37 11	[illegible]	39 50 1	[illegible]
	Saturn	E.	83 18 55	[illegible]	81 32 57	[illegible]	79 46 47	[illegible]	78 0 26	[illegible]
	Antares	E.	90 58 4	[illegible]	89 11 0	[illegible]	87 23 43	[illegible]	85 36 15	[illegible]
18	Aldebaran	W.	102 47 17	[illegible]	104 33 48	[illegible]	106 20 23	[illegible]	108 7 2	[illegible]
	Mars	W.	[illegible]	[illegible]	95 47 53	[illegible]	97 35 53	[illegible]	99 21 59	[illegible]
	Pollux	W.	[illegible]	[illegible]	62 13 1	[illegible]	64 1 4	[illegible]	65 49 13	[illegible]
	Spica	E.	[illegible]	[illegible]	29 4 19	[illegible]	27 16 25	[illegible]	25 28 30	[illegible]
	Saturn	E.	[illegible]	[illegible]	67 19 20	[illegible]	65 32 7	[illegible]	63 44 50	[illegible]
	Antares	E.	76 36 27	[illegible]	74 48 5	[illegible]	72 59 36	[illegible]	71 11 2	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	Pollux	W.	67 37 28	2206	69 25 47	2202	71 14 11	2200	73 2 38	2198
	Regulus	W.	30 36 21	2196	32 24 55	2193	34 13 33	2190	36 2 15	2189
	JUPITER	W.	23 28 24	2190	25 17 7	2183	27 6 0	2177	28 55 2	2172
	SATURN	E.	61 57 30	2244	60 10 8	2243	58 22 44	2243	56 35 21	2243
	Antares	E.	69 22 23	2190	67 33 40	2187	65 44 53	2185	63 56 3	2184
20	Pollux	W.	82 5 17	2198	83 53 48	2198	85 42 18	2200	87 30 45	2202
	Regulus	W.	45 6 9	2187	46 54 56	2188	48 43 42	2190	50 32 25	2191
	JUPITER	W.	38 1 35	2161	39 51 1	2161	41 40 27	2162	43 29 52	2163
	SATURN	E.	47 38 57	2258	45 51 55	2263	44 5 1	2269	42 18 16	2276
	Antares	E.	54 51 37	2184	53 2 45	2184	51 13 54	2186	49 25 6	2188
21	Pollux	W.	96 32 7	2218	98 20 8	2222	100 8 3	2227	101 55 51	2232
	Regulus	W.	59 35 10	2206	61 23 28	2210	63 11 41	2214	64 59 47	2219
	JUPITER	W.	52 36 20	2175	54 25 25	2178	56 14 25	2182	58 3 19	2186
	Antares	E.	40 22 2	2204	38 33 40	2208	36 45 24	2212	34 57 15	2217
	α Aquilæ	E.	94 37 56	2855	93 4 39	2857	91 31 25	2860	89 58 15	2865
	SUN	E.	125 11 25	2518	123 30 37	2522	121 49 55	2527	120 9 20	2532
22	Regulus	W.	73 58 25	2246	75 45 44	2252	77 32 54	2258	79 19 55	2265
	JUPITER	W.	67 6 5	2212	68 54 15	2218	70 42 16	2224	72 30 8	2231
	α Aquilæ	E.	82 14 31	2909	80 42 23	2922	79 10 32	2936	77 38 59	2952
	SUN	E.	111 48 14	2561	110 8 26	2568	108 28 47	2574	106 49 17	2582
23	Regulus	W.	88 12 31	2300	89 58 31	2307	91 44 21	2314	93 30 0	2322
	JUPITER	W.	81 27 2	2264	83 13 54	2271	85 0 36	2279	86 47 7	2286
	Spica	W.	34 13 20	2313	35 59 1	2320	37 44 32	2326	39 29 54	2333
	α Aquilæ	E.	70 6 51	3055	68 37 46	3081	67 9 13	3109	65 41 14	3138
	SUN	E.	98 34 16	2619	96 55 47	2626	95 17 28	2635	93 39 21	2643
24	Regulus	W.	102 15 29	2360	104 0 1	2368	105 44 22	2375	107 28 32	2384
	JUPITER	W.	95 36 57	2324	97 22 22	2332	99 7 35	2339	100 52 37	2348
	Spica	W.	48 14 16	2367	49 58 38	2375	51 42 49	2382	53 26 49	2389
	SUN	E.	85 31 28	2684	83 54 27	2693	82 17 38	2701	80 41 0	2710
25	Spica	W.	62 4 9	2428	63 47 4	2436	65 29 47	2443	67 12 20	2452
	Antares	W.	16 10 59	2422	17 54 2	2430	19 36 54	2438	21 19 35	2446
	SUN	E.	72 40 42	2753	71 5 13	2762	69 29 55	2771	67 54 49	2779
26	Spica	W.	75 42 16	2491	77 23 42	2499	79 4 56	2507	80 46 0	2515
	SATURN	W.	37 54 15	2581	39 33 36	2583	41 12 55	2585	42 52 10	2588
	Antares	W.	29 50 9	2486	31 31 42	2494	33 13 4	2502	34 54 15	2510
	SUN	E.	60 2 10	2824	58 28 13	2832	56 54 27	2842	55 20 53	2851
27	Spica	W.	89 8 29	2555	90 48 26	2564	92 28 11	2572	94 7 45	2580
	SATURN	W.	51 7 7	2612	52 45 46	2617	54 24 18	2623	56 2 42	2629
	Antares	W.	43 17 21	2551	44 57 24	2559	46 37 16	2566	48 16 57	2574
	SUN	E.	47 35 56	2895	46 3 31	2905	44 31 18	2914	42 59 17	2924
28	SATURN	W.	64 12 29	2665	65 49 59	2670	67 27 19	2676	69 4 29	2685
	Antares	W.	56 32 34	2615	58 11 8	2624	59 49 30	2632	61 27 41	2641
	SUN	E.	35 22 11	2972	33 51 23	2981	32 20 47	2992	30 50 24	3002

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XV^h.	P.L. of Diff.	XVIII^h.	P.L. of Diff.	XXI^h.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	Pollux	W.	74 51 8	[illegible]	76 39 39	[illegible]	78 28 12	[illegible]	80 16 45	[illegible]
	Regulus	W.	37 50 59	[illegible]	39 39 45	[illegible]	41 28 33	[illegible]	43 17 21	[illegible]
	Jupiter	W.	30 44 12	[illegible]	32 33 27	[illegible]	34 22 47	[illegible]	36 12 10	[illegible]
	Saturn	E.	54 47 58	[illegible]	53 0 37	[illegible]	51 13 19	[illegible]	49 26 5	[illegible]
	Antares	E.	62 7 11	[illegible]	60 18 18	[illegible]	58 29 24	[illegible]	56 40 30	[illegible]
20	Pollux	W.	89 19 10	[illegible]	91 7 31	[illegible]	92 55 48	[illegible]	94 44 0	[illegible]
	Regulus	W.	52 21 6	[illegible]	54 9 43	[illegible]	55 58 17	[illegible]	57 46 46	[illegible]
	Jupiter	W.	45 19 15	[illegible]	47 8 36	[illegible]	48 57 55	[illegible]	50 47 10	[illegible]
	Saturn	E.	40 31 41	[illegible]	38 45 19	[illegible]	36 59 11	[illegible]	35 13 20	[illegible]
	Antares	E.	47 36 21	[illegible]	45 47 39	[illegible]	43 59 2	[illegible]	42 10 29	[illegible]
21	Pollux	W.	103 43 31	[illegible]	105 31 3	[illegible]	107 18 28	[illegible]	109 5 44	[illegible]
	Regulus	W.	66 47 46	[illegible]	68 35 38	[illegible]	70 23 22	[illegible]	72 10 58	[illegible]
	Jupiter	W.	59 52 7	[illegible]	61 40 48	[illegible]	63 29 21	[illegible]	65 17 47	[illegible]
	Antares	E.	33 9 13	[illegible]	31 21 19	[illegible]	29 33 32	[illegible]	27 45 53	[illegible]
	α Aquilæ	E.	88 25 11	[illegible]	86 52 15	[illegible]	85 19 28	[illegible]	83 46 53	[illegible]
	Sun	E.	118 28 51	[illegible]	116 48 30	[illegible]	115 8 16	[illegible]	113 28 11	[illegible]
22	Regulus	W.	81 6 46	[illegible]	82 53 27	[illegible]	84 39 59	[illegible]	86 26 20	[illegible]
	Jupiter	W.	74 17 50	[illegible]	76 5 23	[illegible]	77 52 46	[illegible]	79 39 59	[illegible]
	α Aquilæ	E.	76 7 46	[illegible]	74 36 55	[illegible]	73 6 27	[illegible]	71 36 25	[illegible]
	Sun	E.	105 9 57	[illegible]	103 30 47	[illegible]	101 51 46	[illegible]	100 12 56	[illegible]
23	Regulus	W.	95 15 28	[illegible]	97 0 45	[illegible]	98 45 51	[illegible]	100 30 46	[illegible]
	Jupiter	W.	88 33 27	[illegible]	90 19 16	[illegible]	92 5 34	[illegible]	93 51 21	[illegible]
	Spica	W.	41 15 6	[illegible]	43 0 8	[illegible]	44 45 1	[illegible]	46 29 44	[illegible]
	α Aquilæ	E.	64 13 51	[illegible]	62 47 7	[illegible]	61 21 5	[illegible]	59 55 47	[illegible]
	Sun	E.	92 1 24	[illegible]	90 23 39	[illegible]	88 46 4	[illegible]	87 8 40	[illegible]
24	Regulus	W.	109 12 30	[illegible]	110 56 17	[illegible]	112 39 52	[illegible]	114 23 16	[illegible]
	Jupiter	W.	102 37 27	[illegible]	104 22 6	[illegible]	106 6 33	[illegible]	107 50 49	[illegible]
	Spica	W.	55 10 39	[illegible]	56 54 18	[illegible]	58 37 46	[illegible]	60 21 3	[illegible]
	Sun	E.	79 4 33	[illegible]	77 28 18	[illegible]	75 52 14	[illegible]	74 16 22	[illegible]
25	Spica	W.	68 54 41	[illegible]	70 36 52	[illegible]	72 18 51	[illegible]	74 0 39	[illegible]
	Antares	W.	23 2 4	[illegible]	24 44 22	[illegible]	26 26 29	[illegible]	28 8 25	[illegible]
	Sun	E.	66 19 54	[illegible]	64 45 11	[illegible]	63 10 39	[illegible]	61 36 19	[illegible]
26	Spica	W.	82 26 52	[illegible]	84 7 33	[illegible]	85 48 3	[illegible]	87 28 22	[illegible]
	Saturn	W.	44 31 21	[illegible]	46 10 27	[illegible]	47 49 27	[illegible]	49 28 20	[illegible]
	Antares	W.	36 35 15	[illegible]	38 16 3	[illegible]	39 56 40	[illegible]	41 37 6	[illegible]
	Sun	E.	53 47 31	[illegible]	52 14 20	[illegible]	50 41 21	[illegible]	49 8 33	[illegible]
27	Spica	W.	95 47 8	[illegible]	97 26 30	[illegible]	99 5 30	[illegible]	100 44 9	[illegible]
	Saturn	W.	57 40 57	[illegible]	59 17 3	[illegible]	60 57 1	[illegible]	62 34 50	[illegible]
	Antares	W.	49 56 27	[illegible]	51 35 46	[illegible]	53 14 53	[illegible]	54 53 49	[illegible]
	Sun	E.	41 27 28	[illegible]	39 55 51	[illegible]	38 24 25	[illegible]	36 53 12	[illegible]
28	Saturn	W.	70 41 29	[illegible]	72 18 1	[illegible]	73 54 59	[illegible]	75 31 27	[illegible]
	Antares	W.	63 5 40	[illegible]	64 43 28	[illegible]	66 21 4	[illegible]	67 58 29	[illegible]
	Sun	E.	29 20 14	[illegible]	27 5[illegible] 17	[illegible]	26 20 34	[illegible]	24 51 5	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Mon.	1	22 50 39.55	9.353	S. 7 21 58.2	+57.15	16 10.28	65.40	12 25.69	0.502
Tues.	2	22 54 23.78	9.333	6 59 3.4	57.41	16 10.03	65.33	12 13.40	0.522
Wed.	3	22 58 7.54	9.314	6 36 2.6	57.65	16 9.79	65.26	12 0.64	0.541
Thur.	4	23 1 50.83	9.295	6 12 56.3	+57.87	16 9.54	65.20	11 47.41	0.560
Frid.	5	23 5 33.68	9.276	5 49 44.9	58.07	16 9.29	65.13	11 33.74	0.579
Sat.	6	23 9 16.10	9.259	5 26 28.9	58.25	16 9.03	65.07	11 19.63	0.596
SUN.	7	23 12 58.10	9.242	5 3 8.6	+58.42	16 8.78	65.02	11 5.13	0.613
Mon.	8	23 16 39.70	9.226	4 39 44.5	58.57	16 8.53	64.96	10 50.22	0.629
Tues.	9	23 20 20.93	9.210	4 16 16.9	58.71	16 8.27	64.91	10 34.94	0.644
Wed.	10	23 24 1.79	9.196	3 52 46.4	+58.83	16 8.02	64.86	10 19.29	0.659
Thur.	11	23 27 42.31	9.182	3 29 13.0	58.93	16 7.76	64.81	10 3.30	0.673
Frid.	12	23 31 22.50	9.169	3 5 37.5	59.02	16 7.50	64.77	9 46.98	0.686
Sat.	13	23 35 2.40	9.156	2 41 59.9	+59.10	16 7.24	64.73	9 30.37	0.698
SUN.	14	23 38 42.01	9.145	2 18 20.8	59.16	16 6.98	64.69	9 13.48	0.709
Mon.	15	23 42 21.37	9.135	1 54 40.5	59.20	16 6.72	64.66	8 56.33	0.719
Tues.	16	23 46 0.49	9.126	1 30 59.3	+59.23	16 6.45	64.63	8 38.95	0.728
Wed.	17	23 49 39.40	9.117	1 7 17.5	59.24	16 6.18	64.60	8 21.36	0.737
Thur.	18	23 53 18.13	9.110	0 43 35.5	59.24	16 5.91	64.57	8 3.58	0.744
Frid.	19	23 56 56.70	9.104	S. 0 19 53.7	+59.23	16 5.63	64.55	7 45.64	0.750
Sat.	20	0 0 35.12	9.099	N. 0 3 47.7	59.21	16 5.36	64.53	7 27.56	0.755
SUN.	21	0 4 13.43	9.094	0 27 28.3	59.17	16 5.08	64.51	7 9.37	0.760
Mon.	22	0 7 51.65	9.091	0 51 7.8	+59.12	16 4.80	64.50	6 51.08	0.764
Tues.	23	0 11 29.81	9.089	1 14 45.8	59.05	16 4.52	64.49	6 32.73	0.766
Wed.	24	0 15 7.91	9.088	1 38 22.0	58.97	16 4.24	64.48	6 14.34	0.767
Thur.	25	0 18 46.00	9.087	2 1 56.1	+58.87	16 3.95	64.48	5 55.92	0.768
Frid.	26	0 22 24.08	9.087	2 25 27.6	58.76	16 3.67	64.48	5 37.50	0.767
Sat.	27	0 26 2.18	9.088	2 48 56.3	58.63	16 3.39	64.48	5 19.10	0.766
SUN.	28	0 29 40.32	9.090	3 12 21.7	+58.49	16 3.10	64.48	5 0.73	0.764
Mon.	29	0 33 18.51	9.093	3 35 43.5	58.33	16 2.82	64.49	4 42.42	0.761
Tues.	30	0 36 56.77	9.096	3 59 1.3	58.15	16 2.54	64.50	4 24.18	0.758
Wed.	31	0 40 35.13	9.100	4 22 14.7	57.96	16 2.26	64.51	4 6.03	0.754
Thur.	32	0 44 13.59	9.105	N. 4 45 23.4	+57.76	16 1.98	64.53	3 47.99	0.749

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing; north declinations increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Mon.	1	22 50 37.61	9.355	S. 7 22 10.1	+57.16	12 25.79	0.508	22 38 11.82
Tues.	2	22 54 21.88	9.335	6 59 15.1	57.41	12 13.51	0.522	22 42 8.37
Wed.	3	22 58 5.68	9.315	6 36 14.2	57.65	12 0.75	0.541	22 46 4.93
Thur.	4	23 1 49.01	9.296	6 13 7.7	+57.87	11 47.53	0.560	22 50 1.48
Frid.	5	23 5 31.89	9.278	5 49 56.2	58.08	11 33.86	0.579	22 53 58.03
Sat.	6	23 9 14.34	9.261	5 26 39.9	58.26	11 19.75	0.597	22 57 54.59
SUN.	7	23 12 56.39	9.244	5 3 19.5	+58.43	11 5.25	0.613	23 1 51.14
Mon.	8	23 16 38.03	9.228	4 39 55.1	58.58	10 50.34	0.629	23 5 47.70
Tues.	9	23 20 19.30	9.212	4 16 27.3	58.72	10 35.05	0.644	23 9 44.25
Wed.	10	23 24 0.20	9.197	3 52 56.5	+58.84	10 19.40	0.659	23 13 40.80
Thur.	11	23 27 40.77	9.183	3 29 23.0	58.95	10 3.41	0.673	23 17 37.36
Frid.	12	23 31 21.01	9.170	3 5 47.1	59.04	9 47.10	0.686	23 21 33.91
Sat.	13	23 35 0.95	9.158	2 42 9.4	+59.11	9 30.48	0.698	23 25 30.46
SUN.	14	23 38 40.61	9.147	2 18 30.0	59.17	9 13.59	0.709	23 29 27.02
Mon.	15	23 42 20.01	9.137	1 54 49.4	59.21	8 56.44	0.719	23 33 23.57
Tues.	16	23 45 59.18	9.128	1 31 7.9	+59.24	8 39.06	0.728	23 37 20.12
Wed.	17	23 49 38.14	9.119	1 7 25.8	59.25	8 21.46	0.737	23 41 16.68
Thur.	18	23 53 16.91	9.112	0 43 43.5	59.26	8 3.65	0.745	23 45 13.23
Frid.	19	23 56 55.52	9.106	S. 0 20 1.4	+59.25	7 45.74	0.751	23 49 9.78
Sat.	20	0 0 33.[illegible]	9.101	N. 0 3 40.3	59.22	7 27.65	0.756	23 53 6.34
SUN.	21	0 4 12.35	9.096	0 27 21.2	59.18	7 9.46	0.760	23 57 2.89
Mon.	22	0 7 50.62	9.093	0 51 1.0	+59.13	6 51.17	0.763	0 0 59.44
Tues.	23	0 11 28.82	9.091	1 14 39.4	59.06	6 32.82	0.766	0 4 56.00
Wed.	24	0 15 6.97	9.090	1 38 15.9	58.98	6 14.42	[illegible]	0 8 52.55
Thur.	25	0 18 45.10	9.089	2 1 50.2	+58.88	5 56.00	[illegible]	0 12 49.10
Frid.	26	0 22 23.23	9.089	2 25 22.1	58.77	5 37.57	[illegible]	0 16 45.66
Sat.	27	0 26 1.36	9.090	2 48 51.0	58.64	5 19.16	0.766	0 20 42.21
SUN.	28	0 29 [illegible]	9.091	3 12 16.8	+58.50	5 0.79	0.764	0 24 38.77
Mon.	29	0 33 [illegible]	9.093	3 35 38.9	58.34	4 42.48	[illegible]	0 28 35.32
Tues.	30	0 36 55.11	9.096	3 58 57.0	58.16	4 24.24	0.759	0 32 31.87
Wed.	31	0 40 34.51	9.101	4 22 13.6	57.97	4 6.09	0.754	0 36 28.42
Thur.	32	0 44 [illegible]	9.107	N. 4 45 [illegible]	[illegible]	3 48.04	0.749	0 40 24.98

NOTE.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that south declinations are decreasing, north declinations increasing.

Diff. for 1 Hour. + 9^s.856 (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	60	341 12 21.8	12 0.5	150.44	− 0.22	9.9962767	+46.2	1 21 34.78
2	61	342 12 31.6	12 10.2	150.37	− 0.08	9.9963877	46.4	1 17 38.87
3	62	343 12 39.6	12 18.1	150.30	+ 0.04	9.9964993	46.6	1 13 42.96
4	63	344 12 45.8	12 24.2	150.22	+ 0.16	9.9966112	+46.8	1 9 47.06
5	64	345 12 50.1	12 28.4	150.14	0.25	9.9967235	46.9	1 5 51.15
6	65	346 12 52.3	12 30.5	150.05	0.32	9.9968361	47.1	1 1 55.24
7	66	347 12 52.6	12 30.7	149.96	+ 0.36	9.9969493	+47.2	0 57 59.33
8	67	348 12 50.6	12 28.6	149.87	0.37	9.9970628	47.4	0 54 3.42
9	68	349 12 46.5	12 24.3	149.78	0.35	9.9971769	47.6	0 50 7.52
10	69	350 12 40.2	12 17.9	149.69	+ 0.29	9.9972915	+47.9	0 46 11.61
11	70	351 12 31.7	12 9.3	149.60	0.22	9.9974069	48.2	0 42 15.70
12	71	352 12 20.9	11 58.4	149.51	+ 0.12	9.9975230	48.5	0 38 19.79
13	72	353 12 7.8	11 45.2	149.41	0.00	9.9976398	+48.9	0 34 23.89
14	73	354 11 52.4	11 29.7	149.32	− 0.13	9.9977576	49.3	0 30 27.98
15	74	355 11 35.0	11 12.2	149.23	0.26	9.9978765	49.7	0 26 32.07
16	75	356 11 15.3	10 52.4	149.14	− 0.39	9.9979963	+50.1	0 22 36.16
17	76	357 10 53.5	10 30.5	149.05	0.51	9.9981173	50.6	0 18 40.26
18	77	358 10 29.7	10 6.6	148.96	0.61	9.9982393	51.0	0 14 44.35
19	78	359 10 3.8	9 40.6	148.88	− 0.70	9.9983624	+51.5	0 10 48.44
20	79	0 9 35.9	9 12.6	148.80	0.75	9.9984866	51.9	0 6 52.53
21	80	1 9 6.2	8 42.8	148.72	0.78	9.9986116	52.3	0 2 56.62 23 59 0.72
22	81	2 8 34.6	8 11.0	148.64	− 0.78	9.9987375	+52.6	23 55 4.81
23	82	3 8 1.1	7 37.4	148.57	0.75	9.9988641	52.9	23 51 8.90
24	83	4 7 26.0	7 2.2	148.49	0.69	9.9989913	53.1	23 47 12.99
25	84	5 6 49.0	6 25.1	148.42	− 0.60	9.9991188	+53.2	23 43 17.08
26	85	6 6 10.2	5 46.2	148.35	0.49	9.9992466	53.3	23 39 21.18
27	86	7 5 29.7	5 5.6	148.28	0.37	9.9993746	53.3	23 35 25.27
28	87	8 4 47.4	4 23.2	148.20	− 0.24	9.9995025	+53.2	23 31 29.36
29	88	9 4 3.4	3 39.1	148.12	− 0.11	9.9996300	53.1	23 27 33.46
30	89	10 3 17.4	2 53.0	148.04	+ 0.02	9.9997572	52.9	23 23 37.55
31	90	11 2 29.6	2 5.1	147.96	0.14	9.9998839	52.7	23 19 41.64
32	91	12 1 39.8	1 15.2	147.88	+ 0.23	0.0000100	+52.4	23 15 45.73

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0d.0.

Diff. for 1 Hour. −9s.8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 25.0	15 21.0	56 28.2	−1.22	56 13.6	−1.[illegible]	23 25.6	1.84	27.7
2	15 17.1	15 13.2	55 59.0	1.20	55 44.7	1.18	6		28.7
3	15 9.4	15 5.7	55 30.8	1.14	55 17.3	1.10	0 8.6	1.75	0.0
4	15 2.2	14 58.9	55 4.4	−1.04	54 52.3	−0.97	0 50.0	1.71	1.0
5	14 55.9	14 53.2	54 41.2	0.88	54 31.3	0.77	1 30.9	1.71	2.0
6	14 50.8	14 48.9	54 22.7	0.65	54 15.6	0.52	2 12.3	1.75	3.0
7	14 47.5	14 46.6	54 10.4	−0.35	54 7.1	−0.19	2 55.0	1.82	4.0
8	14 46.3	14 46.5	54 5.9	−0.01	54 6.9	+0.18	3 39.8	1.91	5.0
9	14 47.4	14 49.1	54 10.2	+0.38	54 16.1	0.59	4 27.0	2.00	6.0
10	14 51.3	14 54.3	54 24.4	+0.80	54 35.3	+1.02	5 16.7	2.12	7.0
11	14 58.0	15 2.3	54 45.8	1.23	55 4.8	1.43	6 8.6	2.19	8.0
12	15 7.3	15 12.9	55 23.2	1.63	55 43.8	1.80	7 1.6	2.22	9.0
13	15 19.1	15 25.8	56 6.5	+1.96	56 30.9	+2.10	7 54.7	2.20	10.0
14	15 32.8	15 40.1	56 56.8	2.20	57 23.7	2.26	8 47.0	2.26	11.0
15	15 47.6	15 55.0	57 51.0	2.28	58 18.3	2.25	9 38.1	2.30	12.0
16	16 2.3	16 9.2	58 45.0	+2.18	59 10.5	+2.04	10 28.1	2.07	13.0
17	16 15.6	16 21.4	59 34.0	1.86	59 55.1	1.63	11 17.6	2.07	14.0
18	16 26.3	16 30.1	60 13.1	1.35	60 27.4	1.04	12 7.7	2.11	15.0
19	16 33.0	16 34.7	60 38.0	+0.70	60 44.3	+0.35	12 59.4	2.20	16.0
20	16 35.3	16 34.8	60 46.5	+0.01	60 44.5	−0.33	13 53.8	2.33	17.0
21	16 33.2	[illegible]	60 37.5	[illegible]	60 29.[illegible]	0.93	14 51.4	2.47	18.0
22	16 27.1	16 22.9	60 16.2	−1.18	60 0.8	−1.38	15 52.0	2.57	19.0
23	16 18.1	16 12.9	59 43.2	1.55	59 24.0	1.65	16 54.1	2.59	20.0
24	16 7.3	16 1.6	59 3.6	1.73	58 42.5	1.77	17 55.5	2.52	21.0
25	15 55.8	15 50.0	58 21.2	−1.77	58 0.0	−1.76	18 53.9	2.35	22.0
26	15 44.3	15 38.8	57 39.0	1.72	57 18.7	1.66	19 48.0	2.16	23.0
27	15 33.4	15 28.3	56 58.1	1.60	56 40.3	1.52	20 37.7	1.99	24.0
28	15 23.5	15 18.[illegible]	56 22.6	−1.44	56 5.8	−1.36	21 23.6	1.85	25.0
29	15 14.6	15 10.6	55 4[illegible]	1.28	55 35.1	1.20	22 6.7	1.75	26.0
30	15 6.8	15 3.3	55 21.2	1.11	55 8.4	1.03	22 48.1	1.70	27.0
31	15 0.1	14 57.1	54 58.5	0.[illegible]	54 45.6	0.87	23 28.7	1.69	28.0
32	14 54.4	14 51.9	54 36.6	−0.79	54 26.7	−0.70	6		29.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 1.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	21 20 49.51	2.0591	S. 15 16 2.1	12.667
1	21 22 52.89	2.0536	15 3 20.2	12.729
2	21 24 55.94	2.0482	14 50 34.6	12.789
3	21 26 58.67	2.0428	14 37 45.5	12.847
4	21 29 1.08	2.0375	14 24 52.9	12.905
5	21 31 3.17	2.0322	14 11 56.9	12.962
6	21 33 4.94	2.0269	13 58 57.5	13.017
7	21 35 6.40	2.0218	13 45 54.9	13.069
8	21 37 7.56	2.0168	13 32 49.2	13.121
9	21 39 8.42	2.0118	13 19 40.3	13.173
10	21 41 8.98	2.0068	13 6 28.4	13.222
11	21 43 9.24	2.0019	12 53 13.6	13.271
12	21 45 9.21	1.9971	12 39 55.9	13.318
13	21 47 8.89	1.9923	12 26 35.4	13.364
14	21 49 8.29	1.9876	12 13 12.2	13.409
15	21 51 7.40	1.9829	11 59 46.3	13.453
16	21 53 6.24	1.9783	11 46 17.8	13.496
17	21 55 4.80	1.9737	11 32 46.8	13.537
18	21 57 3.09	1.9693	11 19 13.4	13.577
19	21 59 1.12	1.9649	11 5 37.6	13.616
20	22 0 58.88	1.9605	10 51 59.5	13.653
21	22 2 56.38	1.9562	10 38 19.2	13.689
22	22 4 53.63	1.9521	10 24 36.8	13.725
23	22 6 50.63	1.9479	S. 10 10 52.2	13.760

TUESDAY 2.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	22 8 47.37	1.9437	S. 9 57 5.6	13.792
1	22 10 43.87	1.9397	9 43 17.1	13.824
2	22 12 40.14	1.9358	9 29 26.7	13.855
3	22 14 36.17	1.9319	9 15 34.5	13.884
4	22 16 31.97	1.9281	9 1 40.6	13.913
5	22 18 27.54	1.9243	8 47 44.9	13.942
6	22 20 22.89	1.9206	8 33 47.6	13.968
7	22 22 18.02	1.9170	8 19 48.8	13.993
8	22 24 12.93	1.9134	8 5 48.5	14.016
9	22 26 7.63	1.9099	7 51 46.9	14.039
10	22 28 2.12	1.9065	7 37 43.9	14.061
11	22 29 56.41	1.9031	7 23 39.6	14.082
12	22 31 50.50	1.8998	7 9 34.1	14.102
13	22 33 44.39	1.8966	6 55 27.4	14.121
14	22 35 38.09	1.8935	6 41 19.6	14.138
15	22 37 31.61	1.8904	6 27 10.8	14.155
16	22 39 24.94	1.8873	6 13 1.0	14.171
17	22 41 18.09	1.8844	5 58 50.3	14.185
18	22 43 11.07	1.8816	5 44 38.8	14.199
19	22 45 3.88	1.8787	5 30 26.5	14.212
20	22 46 56.52	1.8759	5 16 13.4	14.223
21	22 48 48.99	1.8732	5 1 59.7	14.233
22	22 50 41.30	1.8706	4 47 45.4	14.243
23	22 52 33.46	1.8681	4 33 30.5	14.252
24	22 54 25.47	1.8657	S. 4 19 15.2	14.259

WEDNESDAY 3.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	22 54 25.47	1.8657	S. 4 19 15.2	14.259
1	22 56 17.34	1.8632	4 4 59.4	14.266
2	22 58 9.06	1.8608	3 50 43.3	14.271
3	23 0 0.64	1.8585	3 36 26.9	14.276
4	23 1 52.08	1.8563	3 22 10.2	14.280
5	23 3 43.40	1.8542	3 7 53.3	14.282
6	23 5 34.59	1.8522	2 53 36.3	14.284
7	23 7 25.66	1.8502	2 39 19.2	14.285
8	23 9 16.61	1.8482	2 25 2.1	14.285
9	23 11 7.44	1.8463	2 10 45.0	14.284
10	23 12 58.16	1.8445	1 56 28.0	14.282
11	23 14 48.78	1.8427	1 42 11.1	14.279
12	23 16 39.29	1.8410	1 27 54.5	14.275
13	23 18 29.70	1.8394	1 13 38.1	14.271
14	23 20 20.02	1.8380	0 59 22.0	14.265
15	23 22 10.26	1.8366	0 45 6.3	14.258
16	23 24 0.41	1.8351	0 30 51.0	14.251
17	23 25 50.47	1.8337	0 16 36.2	14.242
18	23 27 40.45	1.8324	S. 0 2 21.9	14.233
19	23 29 30.36	1.8312	N. 0 11 51.8	14.223
20	23 31 20.20	1.8301	0 26 4.9	14.212
21	23 33 9.97	1.8290	0 40 17.3	14.200
22	23 34 59.68	1.8280	0 54 28.9	14.187
23	23 36 49.33	1.8271	N. 1 8 39.8	14.174

THURSDAY 4.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	23 38 38.93	1.8262	N. 1 22 49.8	14.159
1	23 40 28.48	1.8254	1 36 58.9	14.144
2	23 42 17.98	1.8246	1 51 7.1	14.128
3	23 44 7.43	1.8239	2 5 14.3	14.111
4	23 45 56.85	1.8233	2 19 20.4	14.093
5	23 47 46.23	1.8227	2 33 25.5	14.075
6	23 49 35.58	1.8222	2 47 29.4	14.055
7	23 51 24.90	1.8218	3 1 32.1	14.034
8	23 53 14.20	1.8215	3 15 33.5	14.013
9	23 55 3.48	1.8212	3 29 33.7	13.992
10	23 56 52.75	1.8210	3 43 32.5	13.968
11	23 58 42.00	1.8208	3 57 29.9	13.944
12	0 0 31.24	1.8206	4 11 25.8	13.920
13	0 2 20.47	1.8206	4 25 20.3	13.895
14	0 4 9.71	1.8207	4 39 13.2	13.868
15	0 5 58.95	1.8208	4 53 4.5	13.841
16	0 7 48.20	1.8209	5 6 54.1	13.814
17	0 9 37.46	1.8211	5 20 42.1	13.786
18	0 11 26.73	1.8213	5 34 28.4	13.757
19	0 13 16.02	1.8217	5 48 12.9	13.726
20	0 15 5.33	1.8221	6 1 55.5	13.695
21	0 16 54.67	1.8226	6 15 36.3	13.664
22	0 18 44.04	1.8231	6 29 15.2	13.631
23	0 20 33.44	1.8236	6 42 52.0	13.597
24	0 22 22.87	1.8243	N. 6 56 26.8	13.563

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION

FRIDAY 5.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	0 22 22.87	[illegible]	N. 6 56 26.8	[illegible]
1	0 24 12.35	[illegible]	7 9 50.6	[illegible]
2	0 26 1.87	[illegible]	7 23 30.2	[illegible]
3	0 27 51.43	[illegible]	7 36 55.7	[illegible]
4	0 29 41.04	[illegible]	7 50 15.0	[illegible]
5	0 31 30.71	[illegible]	8 3 49.0	[illegible]
6	0 33 20.44	[illegible]	8 17 10.8	[illegible]
7	0 35 10.23	[illegible]	8 30 30.2	[illegible]
8	0 37 0.0[illegible]	[illegible]	8 43 47.2	[illegible]
9	0 38 50.00	[illegible]	8 57 1.8	[illegible]
10	0 40 40.00	[illegible]	9 10 13.9	[illegible]
11	0 42 30.07	[illegible]	9 23 23.4	[illegible]
12	0 44 20.22	[illegible]	9 36 30.4	[illegible]
13	0 46 10.45	[illegible]	9 49 34.8	[illegible]
14	0 48 0.77	[illegible]	10 2 36.5	[illegible]
15	0 49 51.18	[illegible]	10 15 35.4	[illegible]
16	0 51 41.6[illegible]	[illegible]	10 28 31.6	[illegible]
17	0 53 32.27	[illegible]	10 41 25.0	[illegible]
18	0 55 22.96	[illegible]	10 54 15.5	[illegible]
19	0 57 13.75	[illegible]	11 7 3.2	[illegible]
20	0 59 4.65	[illegible]	11 19 47.9	[illegible]
21	1 0 55.66	[illegible]	11 32 29.6	[illegible]
22	1 2 46.78	[illegible]	11 45 8.3	[illegible]
23	1 4 38.02	[illegible]	N. 11 57 43.9	[illegible]

SATURDAY 6.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	1 6 29.57	[illegible]	N. 12 10 16.4	[illegible]
1	1 8 20.85	[illegible]	12 22 45.8	[illegible]
2	1 10 12.45	[illegible]	12 35 11.9	[illegible]
3	1 12 4.18	[illegible]	12 47 34.8	[illegible]
4	1 13 5[illegible].04	[illegible]	12 5[illegible] 54.4	[illegible]
5	1 15 48.01	[illegible]	13 12 1[illegible]	[illegible]
6	1 17 40.16	[illegible]	13 24 21.4	[illegible]
7	1 19 32.43	[illegible]	13 [illegible]	[illegible]
8	1 21 24.84	[illegible]	13 4[illegible] 7	[illegible]
9	1 23 17.41	[illegible]	14 0 41.1	[illegible]
10	1 25 10.11	[illegible]	14 12 [illegible]	[illegible]
11	1 27 2.97	[illegible]	14 24 [illegible]	[illegible]
12	1 28 55.[illegible]	[illegible]	14 [illegible] 7	[illegible]
13	1 [illegible] 4[illegible].15	[illegible]	14 4[illegible] 14.[illegible]	[illegible]
14	1 32 42.4[illegible]	[illegible]	14 5[illegible] 7	[illegible]
15	1 34 [illegible]	[illegible]	15 11 [illegible]	[illegible]
16	1 3[illegible]	[illegible]	15 23 15.5	[illegible]
17	1 3[illegible] 21.4[illegible]	[illegible]	15 34 4[illegible].1	[illegible]
18	1 40 1[illegible]	[illegible]	15 4[illegible]	[illegible]
19	1 42 11.[illegible]	[illegible]	15 5[illegible] 4[illegible].4	[illegible]
20	1 44 [illegible]	[illegible]	[illegible]	[illegible]
21	1 4[illegible] [illegible]	[illegible]	[illegible]	[illegible]
22	1 4[illegible] [illegible].22	[illegible]	16 [illegible] 11.2	[illegible]
23	1 4[illegible] [illegible] 12	[illegible]	16 42 [illegible]	[illegible]
24	1 51 4[illegible]	[illegible]	N. 16 [illegible]	[illegible]

SUNDAY 7.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	1 51 45.20	[illegible]	N. 16 53 43.8	[illegible]
1	1 53 40.47	[illegible]	17 4 43.8	[illegible]
2	1 55 35.93	[illegible]	17 15 39.4	[illegible]
3	1 57 31.59	[illegible]	17 26 30.7	[illegible]
4	1 59 27.44	[illegible]	17 37 17.6	[illegible]
5	2 1 23.49	[illegible]	17 48 0.1	[illegible]
6	2 3 19.73	[illegible]	17 58 38.1	[illegible]
7	2 5 16.18	[illegible]	18 9 11.6	[illegible]
8	2 7 12.84	[illegible]	18 19 40.6	[illegible]
9	2 9 9.70	[illegible]	18 30 5.0	[illegible]
10	2 11 6.77	[illegible]	18 40 24.7	[illegible]
11	2 13 4.05	[illegible]	18 50 39.7	[illegible]
12	2 15 1.54	[illegible]	19 0 50.0	[illegible]
13	2 16 59.25	[illegible]	19 10 55.5	[illegible]
14	2 18 57.17	[illegible]	19 20 56.2	[illegible]
15	2 20 55.31	[illegible]	19 30 52.0	[illegible]
16	2 22 53.67	[illegible]	19 40 42.9	[illegible]
17	2 24 52.26	[illegible]	19 50 28.8	[illegible]
18	2 26 51.07	[illegible]	20 0 9.7	[illegible]
19	2 28 50.10	[illegible]	20 9 45.6	[illegible]
20	2 30 49.36	[illegible]	20 19 16.3	[illegible]
21	2 32 48.85	[illegible]	20 28 41.9	[illegible]
22	2 34 48.57	[illegible]	20 38 2.3	[illegible]
23	2 36 48.52	[illegible]	N. 20 47 17.4	[illegible]

MONDAY 8.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	2 38 48.70	[illegible]	N. 20 56 27.3	[illegible]
1	2 40 49.12	[illegible]	21 5 31.8	[illegible]
2	2 42 49.77	[illegible]	21 14 31.0	[illegible]
3	2 44 50.65	[illegible]	21 23 24.8	[illegible]
4	2 46 51.77	[illegible]	21 32 13.2	[illegible]
5	2 48 53.13	[illegible]	21 40 56.0	[illegible]
6	2 50 54.72	[illegible]	21 49 33.2	[illegible]
7	2 52 56.55	[illegible]	21 58 4.8	[illegible]
8	2 54 58.63	[illegible]	22 6 30.8	[illegible]
9	2 57 0.95	[illegible]	22 14 51.1	[illegible]
10	2 59 3.51	[illegible]	22 23 5.6	[illegible]
11	3 1 6.31	[illegible]	22 31 14.4	[illegible]
12	3 3 9.36	[illegible]	22 39 17.4	[illegible]
13	3 5 12.65	[illegible]	22 47 14.5	[illegible]
14	3 7 16.18	[illegible]	22 55 5.6	[illegible]
15	3 9 19.[illegible]	[illegible]	23 2 50.5	[illegible]
16	3 11 23.[illegible]	[illegible]	23 10 30.0	[illegible]
17	3 13 2[illegible].25	[illegible]	23 18 3.1	[illegible]
18	3 15 32.76	[illegible]	23 25 30.2	[illegible]
19	3 17 [illegible].52	[illegible]	23 32 51.1	[illegible]
20	3 [illegible] 42.52	[illegible]	23 40 5.8	[illegible]
21	3 21 4[illegible]	[illegible]	23 47 14.3	[illegible]
22	3 23 53.26	[illegible]	23 54 16.5	[illegible]
23	3 25 5[illegible]	[illegible]	24 1 12.4	[illegible]
24	3 [illegible] 4.[illegible]	[illegible]	N. 24 8 1.9	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	3 28 4.98	2.1017	N.24 8 1.9	6.772
1	3 30 11.20	2.1057	24 14 45.0	6.664
2	3 32 17.67	2.1098	24 21 21.6	6.556
3	3 34 24.38	2.1138	24 27 51.7	6.447
4	3 36 31.33	2.1179	24 34 15.3	6.338
5	3 38 38.53	2.1220	24 40 32.3	6.228
6	3 40 45.97	2.1260	24 46 42.7	6.117
7	3 42 53.65	2.1300	24 52 46.4	6.006
8	3 45 1.57	2.1339	24 58 43.4	5.893
9	3 47 9.72	2.1378	25 4 33.6	5.780
10	3 49 18.11	2.1417	25 10 17.0	5.667
11	3 51 26.73	2.1457	25 15 53.6	5.553
12	3 53 35.59	2.1496	25 21 23.4	5.438
13	3 55 44.68	2.1534	25 26 46.2	5.322
14	3 57 54.00	2.1573	25 32 2.0	5.205
15	4 0 3.56	2.1612	25 37 10.8	5.087
16	4 2 13.35	2.1650	25 42 12.5	4.970
17	4 4 23.36	2.1687	25 47 7.2	4.852
18	4 6 33.60	2.1725	25 51 54.8	4.733
19	4 8 44.06	2.1762	25 56 35.2	4.613
20	4 10 54.74	2.1799	26 1 8.3	4.492
21	4 13 5.65	2.1836	26 5 34.2	4.371
22	4 15 16.77	2.1872	26 9 52.8	4.249
23	4 17 28.11	2.1908	N.26 14 4.1	4.127

WEDNESDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	4 19 39.66	2.1943	N.26 18 8.0	4.004
1	4 21 51.42	2.1978	26 22 4.5	3.880
2	4 24 3.39	2.2013	26 25 53.6	3.756
3	4 26 15.57	2.2047	26 29 35.2	3.631
4	4 28 27.95	2.2080	26 33 9.3	3.505
5	4 30 40.53	2.2114	26 36 35.8	3.378
6	4 32 53.32	2.2147	26 39 54.7	3.252
7	4 35 6.30	2.2179	26 43 6.0	3.124
8	4 37 19.47	2.2211	26 46 9.6	2.996
9	4 39 32.83	2.2242	26 49 5.5	2.867
10	4 41 46.38	2.2273	26 51 53.7	2.738
11	4 44 0.11	2.2304	26 54 34.1	2.609
12	4 46 14.03	2.2335	26 57 6.8	2.479
13	4 48 28.13	2.2364	26 59 31.6	2.348
14	4 50 42.40	2.2393	27 1 48.5	2.217
15	4 52 56.84	2.2421	27 3 57.6	2.086
16	4 55 11.45	2.2448	27 5 58.8	1.953
17	4 57 26.22	2.2476	27 7 52.0	1.820
18	4 59 41.16	2.2503	27 9 37.2	1.687
19	5 1 56.26	2.2529	27 11 14.4	1.553
20	5 4 11.51	2.2554	27 12 43.6	1.419
21	5 6 26.91	2.2579	27 14 4.7	1.284
22	5 8 42.46	2.2603	27 15 17.7	1.149
23	5 10 58.15	2.2627	27 16 22.6	1.013
24	5 13 13.99	2.2651	N.27 17 19.3	0.878

THURSDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	5 13 13.99	2.2651	N.27 17 19.3	0.878
1	5 15 29.97	2.2673	27 18 7.9	0.742
2	5 17 46.07	2.2694	27 18 48.3	0.604
3	5 20 2.30	2.2716	27 19 20.4	0.467
4	5 22 18.66	2.2737	27 19 44.3	0.330
5	5 24 35.14	2.2757	27 20 0.0	0.192
6	5 26 51.74	2.2776	27 20 7.4	+ 0.054
7	5 29 8.45	2.2794	27 20 6.5	− 0.085
8	5 31 25.27	2.2812	27 19 57.2	0.224
9	5 33 42.20	2.2830	27 19 39.6	0.363
10	5 35 59.23	2.2846	27 19 13.6	0.503
11	5 38 16.35	2.2861	27 18 39.2	0.642
12	5 40 33.56	2.2876	27 17 56.5	0.782
13	5 42 50.86	2.2891	27 17 5.4	0.923
14	5 45 8.25	2.2905	27 16 5.8	1.064
15	5 47 25.72	2.2918	27 14 57.7	1.205
16	5 49 43.26	2.2929	27 13 41.2	1.346
17	5 52 0.87	2.2941	27 12 16.2	1.487
18	5 54 18.56	2.2953	27 10 42.7	1.628
19	5 56 36.31	2.2963	27 9 0.8	1.770
20	5 58 54.11	2.2972	27 7 10.3	1.912
21	6 1 11.97	2.2981	27 5 11.3	2.054
22	6 3 29.88	2.2989	27 3 3.8	2.197
23	6 5 47.84	2.2997	N.27 0 47.7	2.339

FRIDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	6 8 5.84	2.3003	N.26 58 23.1	2.481
1	6 10 23.88	2.3009	26 55 49.9	2.624
2	6 12 41.95	2.3014	26 53 8.2	2.766
3	6 15 0.05	2.3019	26 50 18.0	2.908
4	6 17 18.18	2.3022	26 47 19.2	3.051
5	6 19 36.32	2.3025	26 44 11.8	3.194
6	6 21 54.48	2.3028	26 40 55.9	3.337
7	6 24 12.66	2.3030	26 37 31.4	3.480
8	6 26 30.84	2.3031	26 33 58.3	3.622
9	6 28 49.03	2.3032	26 30 16.7	3.765
10	6 31 7.22	2.3032	26 26 26.5	3.908
11	6 33 25.41	2.3031	26 22 27.7	4.051
12	6 35 43.59	2.3029	26 18 20.4	4.193
13	6 38 1.76	2.3027	26 14 4.5	4.336
14	6 40 19.91	2.3024	26 9 40.1	4.478
15	6 42 38.05	2.3021	26 5 7.2	4.620
16	6 44 56.16	2.3016	26 0 25.7	4.762
17	6 47 14.24	2.3012	25 55 35.7	4.904
18	6 49 32.30	2.3007	25 50 37.2	5.046
19	6 51 50.32	2.3000	25 45 30.2	5.187
20	6 54 8.30	2.2994	25 40 14.7	5.329
21	6 56 26.25	2.2987	25 34 50.7	5.471
22	6 58 44.15	2.2979	25 29 18.2	5.612
23	7 1 2.00	2.2972	25 23 37.3	5.753
24	7 3 19.81	2.2961	N 25 17 47.9	5.893

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 13.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	7 3 19.81	[illegible]	N 25 17 47.9	[illegible]
1	7 5 37.56	[illegible]	25 11 50.1	[illegible]
2	7 7 55.25	[illegible]	25 5 43.9	[illegible]
3	7 10 12.[illegible]	[illegible]	24 59 24.3	[illegible]
4	7 12 30.45	[illegible]	24 53 0.3	[illegible]
5	7 14 47.[illegible]	[illegible]	24 46 35.0	[illegible]
6	7 17 5.38	[illegible]	24 39 55.3	[illegible]
7	7 19 22.74	[illegible]	24 33 7.3	[illegible]
8	7 21 40.02	[illegible]	24 26 11.0	[illegible]
9	7 23 57.22	[illegible]	24 19 6.5	7.144
10	7 26 14.34	[illegible]	24 11 53.7	[illegible]
11	7 28 31.35	[illegible]	24 4 32.7	[illegible]
12	7 30 48.34	[illegible]	23 57 3.5	[illegible]
13	7 33 5.21	[illegible]	23 49 26.1	[illegible]
14	7 35 21.[illegible]	[illegible]	23 41 40.6	[illegible]
15	7 37 38.66	[illegible]	23 33 46.9	[illegible]
16	7 39 55.25	[illegible]	23 25 45.2	[illegible]
17	7 42 11.74	[illegible]	23 17 35.4	[illegible]
18	7 44 28.13	[illegible]	23 9 17.[illegible]	[illegible]
19	7 46 44.42	[illegible]	23 0 51.8	[illegible]
20	7 49 0.61	[illegible]	22 52 18.1	[illegible]
21	7 51 16.69	[illegible]	22 43 36.4	[illegible]
22	7 53 32.66	[illegible]	22 34 46.8	[illegible]
23	7 55 48.53	[illegible]	N 22 25 49.4	[illegible]

SUNDAY 14.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	7 58 4.29	[illegible]	N 22 16 44.1	[illegible]
1	8 0 19.94	[illegible]	22 7 31.1	[illegible]
2	8 2 35.47	[illegible]	21 58 10.5	[illegible]
3	8 4 50.[illegible]	[illegible]	21 48 41.8	[illegible]
4	8 7 6.20	[illegible]	21 39 5.6	[illegible]
5	8 9 21.[illegible]	[illegible]	21 29 21.8	[illegible]
6	8 11 36.4[illegible]	[illegible]	21 19 30.4	[illegible]
7	8 13 51.43	[illegible]	21 9 31.4	[illegible]
8	8 16 6.27	[illegible]	20 59 25.0	[illegible]
9	8 18 21.[illegible]	[illegible]	20 49 11.1	[illegible]
10	8 20 35.[illegible]	[illegible]	20 38 4[illegible].8	[illegible]
11	8 22 50.[illegible]	[illegible]	20 28 21.1	[illegible]
12	8 25 4.45	[illegible]	20 17 45.0	[illegible]
13	8 27 18.[illegible]	[illegible]	20 7 1.6	[illegible]
14	8 29 32.[illegible]	[illegible]	19 56 11.1	[illegible]
15	8 31 46.[illegible]	[illegible]	19 45 1[illegible].4	[illegible]
16	8 34 0.[illegible]	[illegible]	19 34 [illegible].5	[illegible]
17	8 36 14.46	[illegible]	19 22 56.5	[illegible]
18	8 38 28.1[illegible]	[illegible]	19 11 [illegible].5	[illegible]
19	8 40 41.[illegible]3	[illegible]	19 0 21.5	[illegible]
20	8 42 55.[illegible]3	[illegible]	18 48 [illegible].5	[illegible]
21	8 45 [illegible]	[illegible]	18 36 [illegible].7	[illegible]
22	8 47 21.6[illegible]	[illegible]	18 25 2[illegible].1	[illegible]
23	8 49 34.[illegible]	[illegible]	18 13 1[illegible].7	[illegible]
24	8 51 47.42	[illegible]	N 18 1 18.5	[illegible]

MONDAY 15.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	8 51 47.42	[illegible]	N.18 1 18.5	[illegible]
1	8 54 0.83	[illegible]	17 49 21.7	[illegible]
2	8 56 12.92	[illegible]	17 36 58.3	[illegible]
3	8 58 25.49	[illegible]	17 24 38.3	[illegible]
4	9 0 37.95	[illegible]	17 12 11.8	[illegible]
5	9 2 50.30	[illegible]	16 59 38.9	[illegible]
6	9 5 2.53	[illegible]	16 46 59.7	[illegible]
7	9 7 14.65	[illegible]	16 34 14.1	[illegible]
8	9 9 26.66	[illegible]	16 21 22.3	[illegible]
9	9 11 38.57	[illegible]	16 8 24.3	13.007
10	9 13 50.37	[illegible]	15 55 20.2	13.119
11	9 16 2.06	[illegible]	15 42 10.0	[illegible]
12	9 18 13.64	[illegible]	15 28 53.8	[illegible]
13	9 20 25.12	[illegible]	15 15 31.7	[illegible]
14	9 22 36.51	[illegible]	15 2 3.7	[illegible]
15	9 24 47.80	[illegible]	14 48 29.9	[illegible]
16	9 26 58.99	[illegible]	14 34 50.3	[illegible]
17	9 29 10.09	[illegible]	14 21 5.2	[illegible]
18	9 31 21.09	[illegible]	14 7 14.3	[illegible]
19	9 33 32.00	[illegible]	13 53 18.0	[illegible]
20	9 35 42.83	[illegible]	13 39 16.8	[illegible]
21	9 37 53.57	[illegible]	13 25 9.0	[illegible]
22	9 40 4.23	[illegible]	13 10 56.5	[illegible]
23	9 42 14.81	[illegible]	N.12 56 38.8	[illegible]

TUESDAY 16.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	9 44 25.30	[illegible]	N 12 42 15.9	[illegible]
1	9 46 35.72	[illegible]	12 27 47.9	[illegible]
2	9 48 46.07	[illegible]	12 13 14.9	[illegible]
3	9 50 56.35	[illegible]	11 58 36.9	[illegible]
4	9 53 6.56	[illegible]	11 43 54.0	14.735
5	9 55 16.70	[illegible]	11 29 6.3	[illegible]
6	9 57 26.78	[illegible]	11 14 14.0	[illegible]
7	9 59 36.80	[illegible]	10 59 17.0	[illegible]
8	10 1 46.77	[illegible]	10 44 15.4	[illegible]
9	10 3 56.68	[illegible]	10 29 9.3	[illegible]
10	10 6 6.54	[illegible]	10 13 58.8	[illegible]
11	10 8 16.[illegible]	[illegible]	9 58 44.0	[illegible]
12	10 10 26.13	[illegible]	9 43 25.0	[illegible]
13	10 12 35.86	[illegible]	9 28 1.8	[illegible]
14	10 14 45.55	[illegible]	9 12 34.5	[illegible]
15	10 16 55.21	[illegible]	8 57 3.3	[illegible]
16	10 19 4.84	[illegible]	8 41 28.2	[illegible]
17	10 21 14.44	[illegible]	8 25 49.2	[illegible]
18	10 23 24.[illegible]	[illegible]	8 10 6.4	15.703
19	10 25 33.55	[illegible]	7 54 20.0	[illegible]
20	10 27 43.12	[illegible]	7 38 30.0	[illegible]
21	10 29 52.[illegible]5	[illegible]	7 22 36.6	[illegible]
22	10 32 2.17	[illegible]	7 6 39.8	[illegible]
23	10 34 11.65	[illegible]	6 50 3[illegible].7	[illegible]
24	10 36 21.19	[illegible]	N. 6 34 36.4	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 17.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	10 36 21.19	2.1585	N. 6 34 36.4	16.081
1	10 38 30.70	2.1586	6 18 30.0	16.132
2	10 40 40.22	2.1587	6 2 20.5	16.182
3	10 42 49.75	2.1589	5 46 8.1	16.230
4	10 44 59.29	2.1592	5 29 52.9	16.277
5	10 47 8.85	2.1595	5 13 34.9	16.322
6	10 49 18.43	2.1598	4 57 14.3	16.365
7	10 51 28.03	2.1603	4 40 51.1	16.407
8	10 53 37.67	2.1609	4 24 25.5	16.447
9	10 55 47.34	2.1615	4 7 57.5	16.486
10	10 57 57.05	2.1621	3 51 27.2	16.523
11	11 0 6.80	2.1628	3 34 54.8	16.558
12	11 2 16.59	2.1636	3 18 20.3	16.592
13	11 4 26.43	2.1645	3 1 43.8	16.624
14	11 6 36.33	2.1655	2 45 5.4	16.654
15	11 8 46.29	2.1665	2 28 25.3	16.682
16	11 10 56.31	2.1676	2 11 43.5	16.710
17	11 13 6.40	2.1687	1 55 0.1	16.736
18	11 15 16.55	2.1698	1 38 15.2	16.759
19	11 17 26.78	2.1712	1 21 29.0	16.781
20	11 19 37.09	2.1726	1 4 41.5	16.802
21	11 21 47.49	2.1741	0 47 52.8	16.820
22	11 23 57.98	2.1756	0 31 3.1	16.837
23	11 26 8.56	2.1771	N. 0 14 12.4	16.852

THURSDAY 18.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	11 28 19.23	2.1787	S. 0 2 39.2	16.866
1	11 30 30.00	2.1804	0 19 31.5	16.877
2	11 32 40.88	2.1822	0 36 24.4	16.886
3	11 34 51.87	2.1841	0 53 17.8	16.893
4	11 37 2.97	2.1861	1 10 11.6	16.900
5	11 39 14.20	2.1882	1 27 5.8	16.905
6	11 41 25.55	2.1903	1 44 0.2	16.907
7	11 43 37.03	2.1924	2 0 54.7	16.907
8	11 45 48.64	2.1946	2 17 49.1	16.906
9	11 48 0.38	2.1968	2 34 43.4	16.903
10	11 50 12.26	2.1992	2 51 37.5	16.898
11	11 52 24.29	2.2017	3 8 31.2	16.891
12	11 54 36.47	2.2042	3 25 24.4	16.882
13	11 56 48.80	2.2068	3 42 17.0	15.872
14	11 59 1.29	2.2096	3 59 9.0	16.860
15	12 1 13.95	2.2123	4 16 0.2	16.846
16	12 3 26.77	2.2151	4 32 50.5	16.829
17	12 5 39.76	2.2180	4 49 39.7	16.811
18	12 7 52.93	2.2210	5 6 27.8	16.791
19	12 10 6.28	2.2240	5 23 14.6	16.768
20	12 12 19.81	2.2271	5 40 0.0	16.745
21	12 14 33.53	2.2303	5 56 44.0	16.719
22	12 16 47.44	2.2335	6 13 26.3	16.691
23	12 19 1.55	2.2367	6 30 6.9	16.661
24	12 21 15.85	2.2401	S. 6 46 45.6	16.639

FRIDAY 19.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	12 21 15.85	2.2401	S. 6 46 45.6	16.639
1	12 23 30.36	2.2436	7 3 22.4	16.596
2	12 25 45.08	2.2471	7 19 57.1	16.560
3	12 28 0.01	2.2507	7 36 29.6	16.522
4	12 30 15.16	2.2543	7 52 59.8	16.483
5	12 32 30.53	2.2581	8 9 27.6	16.442
6	12 34 46.13	2.2618	8 25 52.8	16.398
7	12 37 1.95	2.2657	8 42 15.3	16.352
8	12 39 18.01	2.2696	8 58 35.0	16.305
9	12 41 34.30	2.2735	9 14 51.9	16.256
10	12 43 50.83	2.2775	9 31 5.7	16.204
11	12 46 7.60	2.2816	9 47 16.4	16.151
12	12 48 24.62	2.2857	10 3 23.8	16.095
13	12 50 41.89	2.2899	10 19 27.8	16.037
14	12 52 59.41	2.2942	10 35 28.3	15.977
15	12 55 17.19	2.2985	10 51 25.1	15.916
16	12 57 35.23	2.3028	11 7 18.2	15.852
17	12 59 53.53	2.3072	11 23 7.4	15.787
18	13 2 12.10	2.3117	11 38 52.7	15.720
19	13 4 30.94	2.3162	11 54 33.8	15.650
20	13 6 50.05	2.3207	12 10 10.7	15.578
21	13 9 9.43	2.3253	12 25 43.2	15.505
22	13 11 29.09	2.3301	12 41 11.3	15.429
23	13 13 49.04	2.3348	S. 12 56 34.7	15.351

SATURDAY 20.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	13 16 9.27	2.3396	S. 13 11 53.4	15.272
1	13 18 29.79	2.3444	13 27 7.3	15.190
2	13 20 50.60	2.3492	13 42 16.2	15.106
3	13 23 11.69	2.3540	13 57 20.0	15.021
4	13 25 33.08	2.3589	14 12 18.7	14.933
5	13 27 54.76	2.3638	14 27 12.0	14.843
6	13 30 16.74	2.3688	14 41 59.9	14.752
7	13 32 39.02	2.3738	14 56 42.2	14.658
8	13 35 1.60	2.3788	15 11 18.9	14.563
9	13 37 24.48	2.3839	15 25 49.8	14.465
10	13 39 47.67	2.3891	15 40 14.7	14.365
11	13 42 11.17	2.3942	15 54 33.6	14.264
12	13 44 34.97	2.3993	16 8 46.4	14.161
13	13 46 59.08	2.4044	16 22 52.9	14.055
14	13 49 23.50	2.4096	16 36 53.0	13.947
15	13 51 48.23	2.4148	16 50 46.6	13.838
16	13 54 13.27	2.4200	17 4 33.6	13.727
17	13 56 38.63	2.4252	17 18 13.9	13.615
18	13 59 4.30	2.4304	17 31 47.4	13.500
19	14 1 30.28	2.4356	17 45 13.9	13.383
20	14 3 56.57	2.4408	17 58 33.3	13.264
21	14 6 23.18	2.4461	18 11 45.6	13.144
22	14 8 50.10	2.4513	18 24 50.6	13.022
23	14 11 17.33	2.4565	18 37 48.2	12.898
24	14 13 44.88	2.4617	S. 18 50 38.3	12.772

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 21.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	14 13 44.88	[illegible]	S.19 50 38.3	[illegible]
1	14 16 12.74	[illegible]	19 3 20.8	[illegible]
2	14 18 40.91	[illegible]	19 15 55.5	[illegible]
3	14 21 9.39	[illegible]	19 28 22.4	[illegible]
4	14 23 38.18	[illegible]	19 40 41.4	[illegible]
5	14 26 7.27	[illegible]	19 52 52.3	[illegible]
6	14 28 36.67	[illegible]	20 4 55.1	[illegible]
7	14 31 6.38	[illegible]	20 16 49.6	[illegible]
8	14 33 36.39	[illegible]	20 28 35.8	[illegible]
9	14 36 6.70	[illegible]	20 40 13.5	[illegible]
10	14 38 37.32	[illegible]	20 51 42.7	[illegible]
11	14 41 8.22	[illegible]	21 3 3.2	[illegible]
12	14 43 39.43	[illegible]	21 14 15.0	[illegible]
13	14 46 10.93	[illegible]	21 25 17.9	[illegible]
14	14 48 42.72	[illegible]	21 36 11.9	[illegible]
15	14 51 14.78	[illegible]	21 46 56.9	[illegible]
16	14 53 47.14	[illegible]	21 57 32.8	[illegible]
17	14 56 19.77	[illegible]	22 7 59.4	[illegible]
18	14 58 52.68	[illegible]	22 18 16.7	[illegible]
19	15 1 25.86	[illegible]	22 28 24.6	[illegible]
20	15 3 59.31	[illegible]	22 38 23.1	[illegible]
21	15 6 33.03	[illegible]	22 48 12.0	[illegible]
22	15 9 7.01	[illegible]	22 57 51.3	[illegible]
23	15 11 41.24	[illegible]	S.23 7 20.8	[illegible]

MONDAY 22.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	15 14 15.72	[illegible]	S.23 16 40.5	[illegible]
1	15 16 50.44	[illegible]	23 25 50.3	[illegible]
2	15 19 25.41	[illegible]	23 34 50.2	[illegible]
3	15 22 0.62	[illegible]	23 43 40.1	[illegible]
4	15 24 36.06	[illegible]	23 52 19.9	[illegible]
5	15 27 11.72	[illegible]	24 0 49.5	[illegible]
6	15 29 47.60	[illegible]	24 9 8.8	[illegible]
7	15 32 23.69	[illegible]	24 17 17.8	[illegible]
8	15 34 59.97	[illegible]	24 25 16.5	[illegible]
9	15 37 36.49	[illegible]	24 33 4.7	[illegible]
10	15 40 13.19	[illegible]	24 40 42.4	[illegible]
11	15 42 50.07	[illegible]	24 48 9.6	[illegible]
12	15 45 27.13	[illegible]	24 55 26.2	[illegible]
13	15 48 4.36	[illegible]	25 2 32.1	[illegible]
14	15 50 41.77	[illegible]	25 9 27.3	[illegible]
15	15 53 19.34	[illegible]	25 16 11.7	[illegible]
16	15 55 57.06	[illegible]	25 22 45.3	[illegible]
17	15 58 34.92	[illegible]	25 29 8.0	[illegible]
18	16 1 12.92	[illegible]	25 35 19.8	[illegible]
19	16 3 51.05	[illegible]	25 41 20.6	[illegible]
20	16 6 29.10	[illegible]	25 47 10.5	[illegible]
21	16 9 7.67	[illegible]	25 52 49.4	[illegible]
22	16 11 46.15	[illegible]	25 57 17.3	[illegible]
23	16 14 24.72	[illegible]	26 3 34.0	[illegible]
24	16 17 3.35	[illegible]	S.26 8 39.6	[illegible]

TUESDAY 23.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	16 17 3.38	[illegible]	S.26 8 39.6	[illegible]
1	16 19 42.12	[illegible]	26 13 34.0	[illegible]
2	16 22 20.93	[illegible]	26 18 17.3	[illegible]
3	16 24 59.81	[illegible]	26 22 49.4	[illegible]
4	16 27 38.74	[illegible]	26 27 10.2	[illegible]
5	16 30 17.72	[illegible]	26 31 19.8	[illegible]
6	16 32 56.73	[illegible]	26 35 18.1	[illegible]
7	16 35 35.77	[illegible]	26 39 5.1	[illegible]
8	16 38 14.83	[illegible]	26 42 40.9	[illegible]
9	16 40 53.90	[illegible]	26 46 5.4	[illegible]
10	16 43 32.97	[illegible]	26 49 18.6	[illegible]
11	16 46 12.04	[illegible]	26 52 20.5	[illegible]
12	16 48 51.09	[illegible]	26 55 11.0	[illegible]
13	16 51 30.11	[illegible]	26 57 50.2	[illegible]
14	16 54 9.10	[illegible]	27 0 18.2	[illegible]
15	16 56 48.04	[illegible]	27 2 34.9	[illegible]
16	16 59 26.93	[illegible]	27 4 40.2	[illegible]
17	17 2 5.75	[illegible]	27 6 34.3	[illegible]
18	17 4 44.50	[illegible]	27 8 17.1	[illegible]
19	17 7 23.17	[illegible]	27 9 48.7	[illegible]
20	17 10 1.75	[illegible]	27 11 9.0	[illegible]
21	17 12 40.23	[illegible]	27 12 18.1	[illegible]
22	17 15 18.60	[illegible]	27 13 16.0	[illegible]
23	17 17 56.85	[illegible]	S.27 14 2.7	[illegible]

WEDNESDAY 24.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	17 20 34.98	[illegible]	S.27 14 38.3	[illegible]
1	17 23 12.97	[illegible]	27 15 2.7	[illegible]
2	17 25 50.81	[illegible]	27 15 16.1	− [illegible]
3	17 28 28.50	[illegible]	27 15 18.4	+ [illegible]
4	17 31 6.03	[illegible]	27 15 9.6	[illegible]
5	17 33 43.39	[illegible]	27 14 49.9	[illegible]
6	17 36 20.56	[illegible]	27 14 19.2	[illegible]
7	17 38 57.54	[illegible]	27 13 37.5	[illegible]
8	17 41 34.33	[illegible]	27 12 45.0	[illegible]
9	17 44 10.92	[illegible]	27 11 41.7	[illegible]
10	17 46 47.30	[illegible]	27 10 27.6	[illegible]
11	17 49 23.45	[illegible]	27 9 2.7	[illegible]
12	17 51 59.37	[illegible]	27 7 27.2	[illegible]
13	17 54 35.05	[illegible]	27 5 41.0	[illegible]
14	17 57 10.49	[illegible]	27 3 44.2	[illegible]
15	17 59 45.65	[illegible]	27 1 36.9	[illegible]
16	18 2 20.61	[illegible]	26 59 19.1	[illegible]
17	18 4 55.27	[illegible]	26 56 50.8	[illegible]
18	18 7 29.65	[illegible]	26 54 12.2	[illegible]
19	18 10 3.75	[illegible]	26 51 23.3	[illegible]
20	18 12 37.56	[illegible]	26 48 24.2	[illegible]
21	18 15 11.08	[illegible]	26 45 14.8	[illegible]
22	18 17 44.30	[illegible]	26 41 55.3	[illegible]
23	18 20 17.20	[illegible]	26 38 25.8	[illegible]
24	18 22 49.79	[illegible]	S.26 34 46.3	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 25.					**SATURDAY 27.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	18 22 49.79	2.5405	S.26 34 46.3	3.741	0	20 17 24.40	2.2213	S.20 49 12.5	10.114
1	18 25 22.06	2.5351	26 30 56.9	3.906	1	20 19 37.47	2.2145	20 39 2.7	10.212
2	18 27 54.00	2.5296	26 26 57.6	4.069	2	20 21 50.14	2.2077	20 28 47.1	10.308
3	18 30 25.61	2.5240	26 22 48.6	4.231	3	20 24 2.40	2.2009	20 18 25.8	10.403
4	18 32 56.88	2.5183	26 18 29.9	4.392	4	20 26 14.25	2.1941	20 7 58.8	10.496
5	18 35 27.80	2.5125	26 14 1.6	4.552	5	20 28 25.69	2.1873	19 57 26.3	10.588
6	18 37 58.38	2.5067	26 9 23.7	4.711	6	20 30 36.72	2.1805	19 46 48.3	10.678
7	18 40 28.61	2.5007	26 4 36.3	4.868	7	20 32 47.35	2.1738	19 36 4.9	10.767
8	18 42 58.47	2.4947	25 59 39.5	5.024	8	20 34 57.58	2.1672	19 25 16.2	10.855
9	18 45 27.97	2.4886	25 54 33.4	5.179	9	20 37 7.42	2.1606	19 14 22.3	10.942
10	18 47 57.10	2.4824	25 49 18.0	5.332	10	20 39 16.86	2.1540	19 3 23.2	11.027
11	18 50 25.86	2.4762	25 43 53.5	5.484	11	20 41 25.90	2.1474	18 52 19.0	11.111
12	18 52 54.25	2.4700	25 38 19.9	5.635	12	20 43 34.55	2.1409	18 41 9.9	11.193
13	18 55 22.26	2.4636	25 32 37.3	5.784	13	20 45 42.81	2.1345	18 29 55.9	11.273
14	18 57 49.88	2.4571	25 26 45.8	5.933	14	20 47 50.69	2.1281	18 18 37.1	11.353
15	19 0 17.11	2.4505	25 20 45.4	6.080	15	20 49 58.18	2.1218	18 7 13.5	11.432
16	19 2 43.95	2.4440	25 14 36.2	6.225	16	20 52 5.30	2.1155	17 55 45.2	11.509
17	19 5 10.39	2.4374	25 8 18.4	6.368	17	20 54 12.04	2.1092	17 44 12.4	11.584
18	19 7 36.44	2.4308	25 1 52.0	6.511	18	20 56 18.40	2.1029	17 32 35.1	11.658
19	19 10 2.09	2.4241	24 55 17.1	6.652	19	20 58 24.39	2.0968	17 20 53.4	11.732
20	19 12 27.33	2.4173	24 48 33.7	6.792	20	21 0 30.02	2.0907	17 9 7.3	11.805
21	19 14 52.17	2.4106	24 41 42.0	6.930	21	21 2 35.28	2.0847	16 57 17.0	11.873
22	19 17 16.60	2.4037	24 34 42.1	7.067	22	21 4 40.18	2.0787	16 45 22.5	11.943
23	19 19 40.62	2.3968	S.24 27 34.0	7.202	23	21 6 44.72	2.0727	S.16 33 23.8	12.012
	FRIDAY 26.					**SUNDAY 28.**			
0	19 22 4.22	2.3899	S.24 20 17.8	7.337	0	21 8 48.91	2.0669	S.16 21 21.1	12.078
1	19 24 27.41	2.3830	24 12 53.6	7.469	1	21 10 52.75	2.0611	16 9 14.4	12.143
2	19 26 50.18	2.3761	24 5 21.5	7.600	2	21 12 56.24	2.0553	15 57 3.9	12.207
3	19 29 12.54	2.3692	23 57 41.6	7.729	3	21 14 59.38	2.0495	15 44 49.6	12.270
4	19 31 34.48	2.3622	23 49 54.0	7.857	4	21 17 2.18	2.0439	15 32 31.5	12.332
5	19 33 56.00	2.3551	23 41 58.7	7.984	5	21 19 4.65	2.0383	15 20 9.8	12.392
6	19 36 17.09	2.3480	23 33 55.9	8.109	6	21 21 6.78	2.0327	15 7 44.5	12.451
7	19 38 37.76	2.3410	23 25 45.6	8.233	7	21 23 8.58	2.0273	14 55 15.7	12.509
8	19 40 58.01	2.3340	23 17 27.9	8.356	8	21 25 10.06	2.0219	14 42 43.4	12.566
9	19 43 17.84	2.3269	23 9 2.9	8.477	9	21 27 11.21	2.0166	14 30 7.8	12.621
10	19 45 37.24	2.3198	23 0 30.7	8.596	10	21 29 12.05	2.0113	14 17 28.9	12.676
11	19 47 56.22	2.3127	22 51 51.4	8.714	11	21 31 12.57	2.0061	14 4 46.7	12.730
12	19 50 14.77	2.3057	22 43 5.0	8.831	12	21 33 12.78	2.0010	13 52 1.3	12.782
13	19 52 32.90	2.2986	22 34 11.7	8.945	13	21 35 12.69	1.9959	13 39 12.9	12.832
14	19 54 50.60	2.2915	22 25 11.6	9.058	14	21 37 12.29	1.9908	13 26 21.5	12.882
15	19 57 7.88	2.2844	22 16 4.7	9.170	15	21 39 11.59	1.9858	13 13 27.1	12.931
16	19 59 24.73	2.2773	22 6 51.2	9.281	16	21 41 10.59	1.9809	13 0 29.8	12.978
17	20 1 41.16	2.2703	21 57 31.0	9.391	17	21 43 9.30	1.9762	12 47 29.7	13.024
18	20 3 57.17	2.2633	21 48 4.3	9.498	18	21 45 7.73	1.9714	12 34 26.9	13.069
19	20 6 12.76	2.2563	21 38 31.2	9.604	19	21 47 5.87	1.9667	12 21 21.4	13.113
20	20 8 27.93	2.2492	21 28 51.8	9.709	20	21 49 3.73	1.9621	12 8 13.3	13.157
21	20 10 42.67	2.2422	21 19 6.1	9.812	21	21 51 1.32	1.9576	11 55 2.6	13.199
22	20 12 57.00	2.2353	21 9 14.3	9.914	22	21 52 58.04	1.9531	11 41 49.4	13.239
23	20 15 10.91	2.2283	20 59 16.4	10.014	23	21 54 55.6[illegible]	[illegible]	11 28 33.9	13.278
24	20 17 24.40	2.2213	S.20 49 12.5	10.114	24	21 56 52.4[illegible]	[illegible]	S.11 15 16.0	13.317

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 29.

Hour.	Right Ascension. (h m s)	Diff. for 1 Minute. (s)	Declination. (° ′ ″)	Diff. for 1 Minute. (″)
0	21 56 52.48	[illegible]	S. 11 15 [illegible]	[illegible]
1	21 58 49.01	[illegible]	11 1 55.[illegible]	[illegible]
2	22 0 45.29	[illegible]	10 47 33.4	[illegible]
3	22 2 41.31	[illegible]	10 35 [illegible]	[illegible]
4	22 4 37.09	[illegible]	10 21 42.2	[illegible]
5	22 6 32.63	[illegible]	10 8 13.5	[illegible]
6	22 8 27.93	[illegible]	9 54 42.9	[illegible]
7	22 10 22.[illegible]	[illegible]	9 41 10.4	[illegible]
8	22 12 17.83	[illegible]	9 27 36.0	[illegible]
9	22 14 12.44	[illegible]	9 13 59.8	[illegible]
10	22 16 6.[illegible]	[illegible]	9 0 21.9	[illegible]
11	22 18 1.01	[illegible]	8 46 42.3	[illegible]
12	22 19 54.97	[illegible]	8 33 1.2	[illegible]
13	22 21 48.72	[illegible]	8 19 18.5	[illegible]
14	22 23 42.27	[illegible]	8 5 34.3	[illegible]
15	22 25 [illegible]	[illegible]	7 51 4[illegible].7	[illegible]
16	22 27 [illegible].77	[illegible]	7 3[illegible] 1.8	[illegible]
17	22 29 21.74	[illegible]	7 24 13.5	[illegible]
18	22 31 14.52	[illegible]	7 10 24.0	[illegible]
19	22 33 7.11	[illegible]	6 56 33.3	[illegible]
20	22 34 59.53	[illegible]	6 42 41.5	[illegible]
21	22 36 51.77	[illegible]	6 28 4[illegible]	[illegible]
22	22 38 43.84	[illegible]	6 14 54.7	[illegible]
23	22 40 35.74	[illegible]	S. 6 0 59.8	[illegible]

TUESDAY 30.

Hour.	Right Ascension. (h m s)	Diff. for 1 Minute. (s)	Declination. (° ′ ″)	Diff. for 1 Minute. (″)
0	22 42 27.48	[illegible]	S. 5 47 4.1	[illegible]
1	22 44 19.06	[illegible]	5 33 7.5	[illegible]
2	22 46 10.49	[illegible]	5 19 10.1	[illegible]
3	22 48 1.77	[illegible]	5 5 11.9	[illegible]
4	22 49 52.90	[illegible]	4 51 13.0	[illegible]
5	22 51 43.[illegible]	[illegible]	4 37 13.6	[illegible]
6	22 53 34.[illegible]	[illegible]	4 23 13.6	[illegible]
7	22 55 25.49	[illegible]	4 9 13.1	[illegible]
8	22 57 16.09	[illegible]	3 55 12.1	[illegible]
9	22 59 6.56	[illegible]	3 41 10.7	[illegible]
10	23 0 56.[illegible]	[illegible]	3 27 8.9	[illegible]
11	23 2 47.15	[illegible]	3 13 6.8	[illegible]
12	23 4 37.[illegible]	[illegible]	2 59 4.5	[illegible]
13	23 6 27.[illegible]	[illegible]	2 45 2.0	[illegible]
14	23 8 17.[illegible]	[illegible]	2 3[illegible] 5[illegible]	[illegible]
15	23 10 7.01	[illegible]	2 16 5[illegible]	[illegible]
16	23 11 [illegible]	[illegible]	2 2 [illegible]	[illegible]
17	23 13 4[illegible]	[illegible]	1 4[illegible] [illegible]	[illegible]
18	23 15 [illegible]	[illegible]	1 [illegible] 4[illegible]	[illegible]
19	23 17 [illegible]	[illegible]	1 [illegible] 4[illegible]	[illegible]
20	23 19 14.[illegible]	[illegible]	1 [illegible] 4.3	[illegible]
21	23 21 4.[illegible]	[illegible]	0 52 41.1	[illegible]
22	23 22 53.25	[illegible]	0 1[illegible] [illegible]	[illegible]
23	23 24 42.41	[illegible]	0 24 [illegible]	[illegible]
24	23 26 3[illegible]	[illegible]	S. 0 10 [illegible]	[illegible]

WEDNESDAY 31.

Hour.	Right Ascension. (h m s)	Diff. for 1 Minute. (s)	Declination. (° ′ ″)	Diff. for 1 Minute. (″)
0	23 26 31.51	[illegible]	S. 0 10 36.3	[illegible]
1	23 28 20.55	[illegible]	N. 0 3 24.5	[illegible]
2	23 30 9.54	[illegible]	0 17 24.9	[illegible]
3	23 31 5[illegible] 47	[illegible]	0 31 24.7	[illegible]
4	23 33 47.35	[illegible]	0 45 23.9	[illegible]
5	23 35 36.19	[illegible]	0 59 22.6	[illegible]
6	23 37 25.00	[illegible]	1 13 20.6	[illegible]
7	23 39 13.77	[illegible]	1 27 17.8	[illegible]
8	23 41 2.51	[illegible]	1 41 14.3	[illegible]
9	23 42 51.21	[illegible]	1 55 10.0	[illegible]
10	23 44 [illegible]	[illegible]	2 9 4.8	[illegible]
11	23 46 28.55	[illegible]	2 22 58.6	[illegible]
12	23 48 17.20	[illegible]	2 36 51.5	[illegible]
13	23 50 5.83	[illegible]	2 50 43.4	[illegible]
14	23 51 54.45	[illegible]	3 4 34.2	[illegible]
15	23 53 43.07	[illegible]	3 18 23.9	[illegible]
16	23 55 31.69	[illegible]	3 32 12.4	[illegible]
17	23 57 20.31	[illegible]	3 45 59.7	[illegible]
18	23 59 8.94	[illegible]	3 59 45.8	[illegible]
19	0 0 57.58	[illegible]	4 13 30.6	[illegible]
20	0 2 46.23	[illegible]	4 27 14.0	[illegible]
21	0 4 34.90	[illegible]	4 40 56.0	[illegible]
22	0 6 23.59	[illegible]	4 54 36.6	[illegible]
23	0 8 12.30	[illegible]	N. 5 8 15.6	[illegible]

THURSDAY, APRIL 1.

Hour.	Right Ascension. (h m s)	Diff. for 1 Minute. (s)	Declination. (° ′ ″)	Diff. for 1 Minute. (″)
0	0 10 1.04	[illegible]	N. 5 21 53.1	[illegible]

PHASES OF THE MOON.

		d	h	m
● New Moon	Mar.	2	23	56.2
☽ First Quarter		11	3	28.2
○ Full Moon		18	9	27.7
☾ Last Quarter		24	23	59.7

		d	h
☾ Apogee	Mar.	8	0.5
☾ Perigee		20	0.3

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
5	Sun	W.	23 2 13	3359	24 25 16	3366	25 48 11	3372	27 10 59	3379
	Aldebaran	E.	61 9 5	3055	59 40 0	3065	58 11 8	3076	56 42 29	3087
	Mars	E.	74 50 16	3110	73 22 19	3118	71 54 31	3126	70 26 53	3133
	Pollux	E.	103 17 10	2977	101 46 29	2985	100 15 57	2992	98 45 34	2999
6	Sun	W.	34 3 14	3409	35 25 20	3415	36 47 20	3421	38 9 13	3426
	Aldebaran	E.	49 22 37	3143	47 55 20	3156	46 28 18	3168	45 1 30	3181
	Mars	E.	63 10 59	3170	61 44 14	3176	60 17 36	3183	58 51 6	3188
	Pollux	E.	91 15 49	3032	89 46 16	3039	88 16 51	3044	86 47 33	3050
7	Sun	W.	44 57 13	3449	46 18 34	3453	47 39 51	3456	49 1 4	3460
	Mars	E.	51 40 16	3214	50 14 24	3218	48 48 36	3222	47 22 53	3226
	Pollux	E.	79 22 41	3074	77 54 0	3078	76 25 23	3082	74 56 51	3084
	Regulus	E.	116 18 51	3061	114 49 54	3065	113 21 2	3069	111 52 14	3071
8	Sun	W.	55 46 24	3469	57 7 23	3471	58 28 20	3471	59 49 17	3470
	Mars	E.	40 15 14	3238	38 49 50	3239	37 24 27	3241	35 59 6	3241
	Pollux	E.	67 35 1	3096	66 6 47	3097	64 38 34	3098	63 10 22	3098
	Regulus	E.	104 28 59	3082	103 0 27	3082	101 31 55	3082	100 3 24	3082
9	Sun	W.	66 34 17	3463	67 55 23	3460	69 16 32	3456	70 37 45	3452
	Venus	W.	21 51 3	3379	23 13 44	3373	24 36 31	3369	25 59 23	3363
	Pollux	E.	55 49 20	3095	54 21 4	3093	52 52 46	3091	51 24 26	3088
	Regulus	E.	92 40 38	3076	91 11 59	3073	89 43 16	3070	88 14 30	3066
	Jupiter	E.	97 38 43	3035	96 9 14	3033	94 39 42	3030	93 10 6	3026
10	Sun	W.	77 25 9	3425	78 46 57	3418	80 8 53	3410	81 30 58	3402
	Venus	W.	32 55 25	3332	34 19 0	3323	35 42 45	3315	37 6 39	3306
	α Arietis	W.	31 30 28	3094	32 58 45	3084	34 27 14	3073	35 55 56	3063
	Pollux	E.	44 1 47	3070	42 33 1	3065	41 4 9	3061	39 35 12	3056
	Regulus	E.	80 49 21	3042	79 20 0	3035	77 50 31	3029	76 20 54	3021
	Jupiter	E.	85 40 51	3001	84 10 40	2996	82 40 22	2989	81 9 55	2982
11	Sun	W.	88 23 50	3355	89 46 58	3344	91 10 19	3332	92 33 53	3321
	Venus	W.	44 8 57	3254	45 34 2	3242	46 59 21	3231	48 24 54	3218
	α Arietis	W.	43 22 46	3007	44 52 50	2996	46 23 8	2984	47 53 41	2971
	Regulus	E.	68 50 18	2977	67 19 37	2968	65 48 44	2957	64 17 37	2946
	Jupiter	E.	73 35 17	2939	72 3 48	2930	70 32 7	2919	69 0 12	2909
12	Sun	W.	99 35 20	3254	101 0 25	3239	102 25 48	3225	103 51 28	3209
	Venus	W.	55 36 35	3148	57 3 47	3133	58 31 17	3117	59 59 6	3101
	α Arietis	W.	55 30 30	2905	57 2 43	2890	58 35 15	2876	60 8 5	2860
	Regulus	E.	56 38 25	2885	55 5 47	2871	53 32 51	2858	51 59 38	2844
	Jupiter	E.	61 17 3	2848	59 43 38	2835	58 9 56	2822	56 35 57	2808
	Spica	E.	110 41 16	2888	109 8 42	2874	107 35 50	2860	106 2 40	2846
13	Sun	W.	111 4 33	3127	112 32 10	3110	114 0 8	3091	115 28 28	3073
	α Arietis	W.	67 57 13	2782	69 32 5	2766	71 7 18	2748	72 42 54	2731
	Venus	W.	67 23 13	3015	68 53 7	2997	70 23 23	2979	71 54 2	2960
	Aldebaran	W.	36 48 7	2956	38 19 15	2927	39 51 0	2898	41 23 21	2872
	Mars	W.	18 5 27	2930	19 37 8	2911	21 9 13	2892	22 41 42	2874
	Regulus	E.	44 8 49	2768	42 33 39	2752	40 58 8	2735	39 22 15	2719

GREENWICH MEAN TIME

LUNAR DISTANCES

Day of the Month	Name and Direction of Object		Midnight	P.L. of Diff	XV^h	P.L. of Diff	XVIII^h	P.L. of Diff	XXI^h	P.L. of Diff
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
5	Sun	W.	28 33 40	[illegible]	29 56 14	[illegible]	31 18 41	[illegible]	32 41 1	[illegible]
	Aldebaran	E.	55 14 4	[illegible]	53 45 52	[illegible]	52 17 53	[illegible]	50 50 8	[illegible]
	Mars	E.	68 59 24	[illegible]	67 32 5	[illegible]	66 4 54	[illegible]	64 37 52	[illegible]
	Pollux	E.	97 15 20	[illegible]	95 45 15	[illegible]	94 15 18	[illegible]	92 45 30	[illegible]
6	Sun	W.	39 31 0	[illegible]	40 52 41	[illegible]	42 14 17	[illegible]	43 35 47	[illegible]
	Aldebaran	E.	43 34 58	[illegible]	42 8 42	[illegible]	40 42 42	[illegible]	39 17 0	[illegible]
	Mars	E.	57 24 43	[illegible]	55 58 27	[illegible]	54 32 17	[illegible]	53 6 14	[illegible]
	Pollux	E.	85 18 22	[illegible]	83 49 15	[illegible]	82 20 20	[illegible]	80 51 28	[illegible]
7	Sun	W.	50 22 13	[illegible]	51 43 10	[illegible]	53 4 23	[illegible]	54 25 24	[illegible]
	Mars	E.	45 57 15	[illegible]	44 31 40	[illegible]	43 6 9	[illegible]	41 40 40	[illegible]
	Pollux	E.	73 29 22	[illegible]	71 59 57	[illegible]	70 31 36	[illegible]	69 3 17	[illegible]
	Regulus	E.	110 23 29	[illegible]	108 54 45	[illegible]	107 26 9	[illegible]	105 57 33	[illegible]
8	Sun	W.	61 10 15	[illegible]	62 31 13	[illegible]	63 52 13	[illegible]	65 13 14	[illegible]
	Mars	E.	34 33 45	[illegible]	33 8 24	[illegible]	31 43 3	[illegible]	30 17 41	[illegible]
	Pollux	E.	61 42 10	[illegible]	60 13 59	[illegible]	58 45 47	[illegible]	57 17 34	[illegible]
	Regulus	E.	98 34 53	[illegible]	97 6 22	[illegible]	95 37 49	[illegible]	94 9 15	[illegible]
9	Sun	W.	71 59 3	[illegible]	73 20 26	[illegible]	74 41 54	[illegible]	76 3 28	[illegible]
	Venus	W.	27 22 22	[illegible]	28 45 27	[illegible]	30 8 39	[illegible]	31 31 58	[illegible]
	Pollux	E.	49 56 2	[illegible]	48 27 35	[illegible]	46 59 3	[illegible]	45 30 27	[illegible]
	Regulus	E.	86 45 39	[illegible]	85 16 43	[illegible]	83 47 42	[illegible]	82 18 35	[illegible]
	Jupiter	E.	91 40 28	[illegible]	90 10 41	[illegible]	88 40 51	[illegible]	87 10 54	[illegible]
10	Sun	W.	82 53 12	[illegible]	84 15 35	[illegible]	85 38 9	[illegible]	87 0 54	[illegible]
	Venus	W.	38 30 44	[illegible]	39 54 57	[illegible]	41 19 26	[illegible]	42 44 5	[illegible]
	α Arietis	W.	37 24 52	[illegible]	38 53 [illegible]	[illegible]	40 23 21	[illegible]	41 52 56	[illegible]
	Pollux	E.	38 6 8	[illegible]	36 36 58	[illegible]	35 7 41	[illegible]	33 38 17	[illegible]
	Regulus	E.	74 51 7	[illegible]	73 21 11	[illegible]	71 51 4	[illegible]	70 20 47	[illegible]
	Jupiter	E.	79 39 [illegible]	[illegible]	78 8 35	[illegible]	76 37 40	[illegible]	75 6 34	[illegible]
11	Sun	W.	93 57 40	[illegible]	95 21 42	[illegible]	96 45 59	[illegible]	98 10 31	[illegible]
	Venus	W.	49 50 42	[illegible]	51 16 45	[illegible]	52 43 5	[illegible]	54 9 41	[illegible]
	α Arietis	W.	49 24 [illegible]	[illegible]	50 55 35	[illegible]	52 26 56	[illegible]	53 58 34	[illegible]
	Regulus	E.	62 46 17	[illegible]	61 14 42	[illegible]	59 42 52	[illegible]	58 10 47	[illegible]
	Jupiter	E.	67 25 4	[illegible]	65 55 41	[illegible]	64 23 4	[illegible]	62 50 11	[illegible]
12	Sun	W.	105 17 [illegible]	[illegible]	106 43 44	[illegible]	108 10 21	[illegible]	109 37 17	[illegible]
	Venus	W.	61 27 14	[illegible]	62 55 42	[illegible]	64 24 31	[illegible]	65 53 41	[illegible]
	α Arietis	W.	61 41 [illegible]	[illegible]	63 14 44	[illegible]	64 48 33	[illegible]	66 22 43	[illegible]
	Regulus	E.	[illegible] 7	[illegible]	48 52 17	[illegible]	47 18 8	[illegible]	45 43 39	[illegible]
	Jupiter	E.	55 1 4	[illegible]	53 27 4	[illegible]	51 52 10	[illegible]	50 16 56	[illegible]
	Spica	E.	[illegible]	[illegible]	102 55 28	[illegible]	101 21 18	[illegible]	99 46 51	[illegible]
13	Sun	W.	116 57 1	[illegible]	118 [illegible] 14	[illegible]	119 55 41	[illegible]	121 25 30	[illegible]
	α Arietis	W.	74 15 [illegible]	[illegible]	75 55 15	[illegible]	77 32 0	[illegible]	79 9 0	[illegible]
	Venus	W.	[illegible]	[illegible]	74 [illegible] 3	[illegible]	[illegible] 29 22	[illegible]	78 0 37	[illegible]
	Aldebaran	W.	42 [illegible]	[illegible]	44 [illegible]	[illegible]	46 3 4	[illegible]	47 39 23	[illegible]
	Mars	W.	24 14 [illegible]	[illegible]	25 47 [illegible]	[illegible]	27 21 3	[illegible]	28 55 36	[illegible]
	Regulus	E.	37 4 [illegible]	[illegible]	[illegible] 9 2	[illegible]	34 32 23	[illegible]	32 55 1	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
13	JUPITER	E.	48 41 23	2735	47 5 29	2719	45 29 14	2704	43 52 39	2687
	Spica	E.	98 12 3	2769	96 36 54	2753	95 1 24	2736	93 25 32	2719
14	SUN	W.	122 55 43	2981	124 26 19	2962	125 57 19	2943	127 28 43	2924
	α Arietis	W.	80 46 41	2643	82 24 38	2625	84 2 59	2607	85 41 45	2589
	VENUS	W.	79 33 17	2864	81 6 22	2844	82 39 53	2825	84 13 49	2805
	Aldebaran	W.	49 13 29	2747	50 49 7	2723	52 25 16	2700	54 1 56	2678
	MARS	W.	30 30 5	2780	32 4 59	2761	33 40 18	2743	35 16 1	2723
	Spica	E.	85 20 50	2632	83 42 19	2614	82 3 43	2596	80 24 43	2578
15	α Arietis	W.	94 1 49	2497	95 43 6	2480	97 24 48	2462	99 6 55	2444
	VENUS	W.	92 10 3	2704	93 46 37	2684	95 23 38	2664	97 1 6	2645
	Aldebaran	W.	62 12 42	2569	63 52 19	2549	65 32 24	2528	67 12 58	2509
	MARS	W.	43 20 59	2629	44 59 15	2610	46 37 57	2591	48 17 4	2572
	Spica	E.	72 3 28	2487	70 21 57	2470	68 40 1	2452	66 57 40	2433
	SATURN	E.	110 19 22	2517	108 38 33	2498	106 57 17	2480	105 15 35	2461
	Antares	E.	117 53 9	2482	116 11 31	2464	114 29 27	2445	112 46 57	2428
16	Aldebaran	W.	75 42 36	2414	77 25 51	2396	79 9 31	2379	80 53 36	2362
	MARS	W.	56 39 0	2482	58 20 38	2465	60 2 40	2448	61 45 6	2432
	Pollux	W.	33 4 38	2387	34 48 32	2366	36 32 55	2346	38 17 47	2326
	Spica	E.	58 19 37	2348	56 34 47	2331	54 49 33	2315	53 3 56	2299
	SATURN	E.	96 40 36	2371	94 56 20	2355	93 11 40	2337	91 26 35	2322
	Antares	E.	104 8 10	2341	102 23 10	2324	100 37 45	2307	98 51 56	2291
17	Aldebaran	W.	89 39 55	2285	91 26 17	2272	93 12 58	2259	94 59 58	2246
	MARS	W.	70 22 59	2355	72 7 39	2341	73 52 39	2327	75 37 59	2313
	Pollux	W.	47 8 43	2242	48 56 8	2227	50 43 55	2212	52 32 4	2199
	Spica	E.	44 10 12	2227	42 22 24	2214	40 34 17	2201	38 45 51	2190
	SATURN	E.	82 35 30	2247	80 48 12	2234	79 0 35	2220	77 12 38	2208
	Antares	E.	89 57 8	2216	88 9 5	2202	86 20 41	2189	84 31 57	2176
18	Aldebaran	W.	103 59 16	2195	105 47 51	2186	107 36 39	2180	109 25 37	2173
	MARS	W.	84 29 11	2257	86 16 14	2247	88 3 31	2239	89 51 1	2231
	Pollux	W.	61 37 39	2139	63 27 38	2129	65 17 53	2120	67 8 22	2112
	Regulus	W.	24 35 47	2131	26 25 59	2120	28 16 27	2111	30 7 9	2102
	SATURN	E.	68 8 37	2157	66 19 4	2148	64 29 18	2141	62 39 21	2134
	Antares	E.	75 23 46	2121	73 33 19	2112	71 42 38	2103	69 51 43	2095
19	MARS	W.	98 51 14	2200	100 39 42	2195	102 28 17	2192	104 16 57	2190
	Pollux	W.	76 23 38	2079	78 15 9	2075	80 6 46	2072	81 58 29	2069
	Regulus	W.	39 23 43	2068	41 15 31	2064	43 7 25	2061	44 59 25	2058
	JUPITER	W.	35 37 49	2050	37 30 6	2044	39 22 31	2040	41 15 3	2036
	SATURN	E.	53 27 29	2113	51 36 50	2113	49 46 10	2112	47 55 29	2113
	Antares	E.	60 34 23	2064	58 42 29	2061	56 50 29	2057	54 58 23	2054
	α Aquilæ	E.	111 48 36	2821	110 14 36	2800	108 40 8	2780	107 5 14	2763
20	Pollux	W.	91 17 48	2065	93 9 41	2066	95 1 32	2068	96 53 20	2072
	Regulus	W.	54 20 11	2053	56 12 22	2054	58 4 32	2057	59 56 38	2059
	JUPITER	W.	50 38 43	2030	52 31 31	2031	54 24 17	2032	56 17 1	2035
	Antares	E.	45 37 11	2050	43 44 55	2052	41 52 42	2054	40 0 32	2056
	α Aquilæ	E.	99 6 2	2710	97 29 35	2705	95 53 2	2703	94 16 26	2702

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
13	Jupiter	E.	42 15 42	[illegible]	40 38 24	[illegible]	39 0 44	[illegible]	37 22 42	[illegible]
	Spica	E.	91 49 18	[illegible]	90 12 41	[illegible]	88 35 41	[illegible]	86 58 17	[illegible]
14	Sun	W.	129 0 31	[illegible]	130 32 43	[illegible]	132 5 20	[illegible]	133 38 21	[illegible]
	α Arietis	W.	87 20 55	[illegible]	89 0 30	[illegible]	90 40 31	[illegible]	92 20 57	[illegible]
	Venus	W.	85 48 11	[illegible]	87 22 59	[illegible]	88 58 14	[illegible]	90 33 55	[illegible]
	Aldebaran	W.	55 39 6	[illegible]	57 16 46	[illegible]	58 54 55	[illegible]	60 33 34	[illegible]
	Mars	W.	36 52 10	[illegible]	38 28 44	[illegible]	40 5 43	[illegible]	41 43 8	[illegible]
	Spica	E.	78 45 18	[illegible]	77 5 28	[illegible]	75 25 13	[illegible]	73 44 33	[illegible]
15	α Arietis	W.	100 49 27	[illegible]	102 32 24	[illegible]	104 15 46	[illegible]	105 59 33	[illegible]
	Venus	W.	98 39 0	[illegible]	100 17 21	[illegible]	101 56 8	[illegible]	103 35 21	[illegible]
	Aldebaran	W.	68 53 59	[illegible]	70 35 28	[illegible]	72 17 24	[illegible]	73 59 47	[illegible]
	Mars	W.	49 56 37	[illegible]	51 36 35	[illegible]	53 16 58	[illegible]	54 57 47	[illegible]
	Spica	E.	65 14 53	[illegible]	63 31 41	[illegible]	61 48 4	[illegible]	60 4 3	[illegible]
	Saturn	E.	103 33 27	[illegible]	101 50 53	[illegible]	100 7 53	[illegible]	98 24 27	[illegible]
	Antares	E.	111 4 2	[illegible]	109 20 42	[illegible]	107 36 56	[illegible]	105 52 45	[illegible]
16	Aldebaran	W.	82 38 6	[illegible]	84 22 59	[illegible]	86 8 16	[illegible]	87 53 55	[illegible]
	Mars	W.	63 27 55	[illegible]	65 11 8	[illegible]	66 54 43	[illegible]	68 38 40	[illegible]
	Pollux	W.	40 3 6	[illegible]	41 48 52	[illegible]	43 35 4	[illegible]	45 21 41	[illegible]
	Spica	E.	51 17 55	[illegible]	49 31 31	[illegible]	47 44 46	[illegible]	45 57 39	[illegible]
	Saturn	E.	89 41 7	[illegible]	87 55 16	[illegible]	86 9 2	[illegible]	84 22 27	[illegible]
	Antares	E.	97 5 44	[illegible]	95 19 8	[illegible]	93 32 10	[illegible]	91 44 50	[illegible]
17	Aldebaran	W.	96 47 17	[illegible]	98 34 53	[illegible]	100 22 46	[illegible]	102 10 54	[illegible]
	Mars	W.	77 23 39	[illegible]	79 9 37	[illegible]	80 55 52	[illegible]	82 42 24	[illegible]
	Pollux	W.	54 20 33	[illegible]	56 9 22	[illegible]	57 58 30	[illegible]	59 47 56	[illegible]
	Spica	E.	36 57 8	[illegible]	35 8 8	[illegible]	33 18 53	[illegible]	31 29 23	[illegible]
	Saturn	E.	75 24 23	[illegible]	73 35 50	[illegible]	71 47 1	[illegible]	69 57 56	[illegible]
	Antares	E.	82 42 54	[illegible]	80 53 33	[illegible]	79 3 54	[illegible]	77 13 58	[illegible]
18	Aldebaran	W.	111 14 45	[illegible]	113 4 1	[illegible]	114 53 24	[illegible]	116 42 53	[illegible]
	Mars	W.	91 38 43	[illegible]	93 26 36	[illegible]	95 14 40	[illegible]	97 2 53	[illegible]
	Pollux	W.	68 59 3	[illegible]	70 49 56	[illegible]	72 41 1	[illegible]	74 32 15	[illegible]
	Regulus	W.	31 58 5	[illegible]	33 49 13	[illegible]	35 40 33	[illegible]	37 32 3	[illegible]
	Saturn	E.	60 49 14	[illegible]	58 58 58	[illegible]	57 8 34	[illegible]	55 18 4	[illegible]
	Antares	E.	68 0 36	[illegible]	66 9 17	[illegible]	64 17 48	[illegible]	62 26 10	[illegible]
19	Mars	W.	106 5 40	[illegible]	107 54 27	[illegible]	109 43 15	[illegible]	111 32 4	[illegible]
	Pollux	W.	83 50 16	[illegible]	85 42 7	[illegible]	87 34 0	[illegible]	89 25 54	[illegible]
	Regulus	W.	46 51 20	[illegible]	48 43 37	[illegible]	50 35 47	[illegible]	52 27 50	[illegible]
	Jupiter	W.	43 7 41	[illegible]	45 0 23	[illegible]	46 53 8	[illegible]	48 45 55	[illegible]
	Saturn	E.	46 4 42	[illegible]	44 14 12	[illegible]	42 23 41	[illegible]	40 33 16	[illegible]
	Antares	E.	53 6 13	[illegible]	51 14 0	[illegible]	49 21 44	[illegible]	47 29 27	[illegible]
	α Aquilæ	E.	105 29 57	[illegible]	103 54 20	[illegible]	102 18 27	[illegible]	100 42 20	[illegible]
20	Pollux	W.	98 45 3	[illegible]	100 36 42	[illegible]	102 28 14	[illegible]	104 19 39	[illegible]
	Regulus	W.	61 48 41	[illegible]	63 40 37	[illegible]	65 32 31	[illegible]	67 24 17	[illegible]
	Jupiter	W.	58 [illegible] 41	[illegible]	60 8 17	[illegible]	61 54 47	[illegible]	63 47 11	[illegible]
	Antares	E.	38 8 25	[illegible]	36 16 23	[illegible]	34 24 27	[illegible]	32 32 38	[illegible]
	α Aquilæ	E.	92 37 47	[illegible]	91 3 14	[illegible]	89 26 42	[illegible]	87 50 17	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES

Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	IIIh. ° ′ ″	P. L. of Diff.	VIh. ° ′ ″	P. L. of Diff.	IXh. ° ′ ″	P. L. of Diff.
21	Regulus	W.	69 15 55	2081	71 7 24	2086	72 58 44	2093	74 49 54	2100
	Jupiter	W.	65 39 27	2055	67 31 35	2061	69 23 34	2068	71 15 22	2075
	Antares	E.	30 40 57	2078	28 49 24	2085	26 58 1	2091	25 6 48	2098
	α Aquilæ	E.	86 14 0	2725	84 37 54	2736	83 2 2	2748	81 26 26	2761
22	Regulus	W.	84 2 45	2143	85 52 39	2153	87 42 18	2163	89 31 41	2173
	Jupiter	W.	80 31 27	2118	82 21 59	2127	84 12 17	2137	86 2 19	2148
	Spica	W.	30 3 50	2159	31 53 19	2168	33 42 35	2176	35 31 38	2185
	α Aquilæ	E.	73 33 37	2857	72 0 23	2881	70 27 40	2909	68 55 32	2937
	Fomalhaut	E.	97 27 33	2494	95 46 11	2502	94 5 1	2511	92 24 3	2520
	Sun	E.	129 33 40	2460	127 51 30	2470	126 9 34	2480	124 27 53	2491
23	Regulus	W.	98 34 32	2231	100 22 13	2243	102 9 37	2256	103 56 42	2268
	Jupiter	W.	95 8 21	2205	96 56 41	2217	98 44 43	2230	100 32 26	2243
	Spica	W.	44 33 14	2239	46 20 44	2250	48 7 57	2262	49 54 52	2274
	α Aquilæ	E.	61 24 58	3120	59 57 13	3166	58 30 23	3214	57 4 31	3267
	Fomalhaut	E.	84 2 59	2583	82 23 41	2598	80 44 43	2614	79 6 7	2631
	Sun	E.	116 3 25	2551	114 23 22	2564	112 43 37	2577	111 4 10	2590
24	Spica	W.	58 44 57	2337	60 30 2	2350	62 14 48	2364	63 59 15	2376
	Fomalhaut	E.	70 59 16	2729	69 23 15	2752	67 47 44	2775	66 12 44	2800
	Sun	E.	102 51 33	2659	101 13 58	2674	99 36 43	2687	97 59 46	2700
25	Spica	W.	72 36 48	2443	74 19 22	2455	76 1 38	2468	77 43 36	2480
	Saturn	W.	34 57 42	2529	36 38 15	2535	38 18 40	2541	39 58 56	2548
	Antares	W.	26 44 49	2437	28 27 31	2450	30 9 54	2464	31 51 58	2477
	Fomalhaut	E.	58 26 16	2943	56 54 52	2977	55 24 10	3012	53 54 12	3049
	Sun	E.	89 59 50	2774	88 24 48	2788	86 50 4	2802	85 15 39	2817
26	Spica	W.	86 8 52	2545	87 49 2	2558	89 28 55	2570	91 8 31	2582
	Saturn	W.	48 17 37	2591	49 56 45	2600	51 35 40	2610	53 14 21	2619
	Antares	W.	40 17 48	2540	41 58 5	2553	43 38 5	2565	45 17 48	2577
	Fomalhaut	E.	46 36 48	3277	45 12 10	3333	43 48 37	3395	42 26 15	3462
	Sun	E.	77 28 8	2886	75 55 31	2900	74 23 12	2913	72 51 10	2927
27	Spica	W.	99 22 28	2640	101 0 28	2652	102 38 13	2663	104 15 43	2674
	Saturn	W.	61 24 30	2669	63 1 51	2679	64 38 59	2689	66 15 54	2698
	Antares	W.	53 32 19	2635	55 10 26	2647	56 48 17	2657	58 25 54	2669
	Sun	E.	65 15 10	2992	63 44 47	3004	62 14 39	3017	60 44 47	3028
28	Saturn	W.	74 17 16	2746	75 52 55	2756	77 28 21	2765	79 3 35	2775
	Antares	W.	66 30 22	2721	68 6 34	2731	69 42 33	2741	71 18 19	2750
	Sun	E.	53 19 8	3088	51 50 44	3100	50 22 34	3111	48 54 38	3123
29	Saturn	W.	86 56 46	2815	88 30 50	2827	90 4 43	2835	91 38 25	2843
	Antares	W.	79 14 5	[illegible]	80 48 39	[illegible]	82 23 1	2813	83 57 12	2821
	Sun	E.	41 38 25	3179	40 11 51	3190	38 45 30	3202	37 19 23	3213
30	Saturn	W.	99 24 16	[illegible]	100 56 55	[illegible]	102 29 24	2900	104 1 43	2908
	Antares	W.	91 45 28	[illegible]	93 18 36	[illegible]	94 51 35	[illegible]	96 24 24	2884
	α Aquilæ	W.	46 19 36	[illegible]	47 26 46	[illegible]	48 34 54	4110	49 43 55	4222
	Sun	E.	30 12 13	3271	28 47 30	3287	27 23 3	3300	25 58 52	3315

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h.	P. L. of Diff.	XVIII^h.	P. L. of Diff.	XXI^h.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
21	Regulus	W.	76 40 53	[illegible]	78 31 40	[illegible]	80 22 15	[illegible]	82 12 37	[illegible]
	Jupiter	W.	73 7 0	[illegible]	74 58 26	[illegible]	76 49 40	[illegible]	78 40 40	[illegible]
	Antares	E.	23 15 46	[illegible]	21 24 56	[illegible]	19 34 18	[illegible]	17 43 54	[illegible]
	α Aquilæ	E.	79 51 7	[illegible]	78 16 8	[illegible]	76 41 32	[illegible]	75 7 21	[illegible]
22	Regulus	W.	91 20 49	[illegible]	93 9 40	[illegible]	94 58 15	[illegible]	96 46 32	[illegible]
	Jupiter	W.	87 52 5	[illegible]	89 41 34	[illegible]	91 30 47	[illegible]	93 19 43	[illegible]
	Spica	W.	37 20 28	[illegible]	39 9 3	[illegible]	40 57 23	[illegible]	42 45 27	[illegible]
	α Aquilæ	E.	67 24 0	[illegible]	65 53 8	[illegible]	64 22 50	[illegible]	62 53 34	[illegible]
	Fomalhaut	E.	90 43 18	[illegible]	89 2 48	[illegible]	87 22 34	[illegible]	85 42 37	[illegible]
	Sun	E.	122 46 27	[illegible]	121 5 17	[illegible]	119 24 23	[illegible]	117 43 45	[illegible]
23	Regulus	W.	105 43 29	[illegible]	107 29 56	[illegible]	109 16 5	[illegible]	111 1 54	[illegible]
	Jupiter	W.	102 19 50	[illegible]	104 6 55	[illegible]	105 53 41	[illegible]	107 40 8	[illegible]
	Spica	W.	51 41 30	[illegible]	53 27 50	[illegible]	55 13 51	[illegible]	56 59 33	[illegible]
	α Aquilæ	E.	55 39 41	[illegible]	54 15 56	[illegible]	52 53 22	[illegible]	51 32 2	[illegible]
	Fomalhaut	E.	77 27 54	[illegible]	75 50 5	[illegible]	74 12 42	[illegible]	72 35 45	[illegible]
	Sun	E.	109 25 1	[illegible]	107 46 10	[illegible]	106 7 39	[illegible]	104 29 26	[illegible]
24	Spica	W.	65 43 24	[illegible]	67 27 13	[illegible]	69 10 44	[illegible]	70 53 55	[illegible]
	Fomalhaut	E.	64 38 16	[illegible]	63 4 22	[illegible]	61 31 3	[illegible]	59 58 20	[illegible]
	Sun	E.	96 23 9	[illegible]	94 46 50	[illegible]	93 10 51	[illegible]	91 35 11	[illegible]
25	Spica	W.	79 25 15	[illegible]	81 6 36	[illegible]	82 47 39	[illegible]	84 28 24	[illegible]
	Saturn	W.	41 39 3	[illegible]	43 18 59	[illegible]	44 58 44	[illegible]	46 38 17	[illegible]
	Antares	W.	33 33 44	[illegible]	35 15 12	[illegible]	36 56 22	[illegible]	38 37 14	[illegible]
	Fomalhaut	E.	52 25 0	[illegible]	50 56 37	[illegible]	49 29 5	[illegible]	48 2 27	[illegible]
	Sun	E.	83 41 33	[illegible]	82 7 45	[illegible]	80 34 15	[illegible]	79 1 3	[illegible]
26	Spica	W.	92 47 51	[illegible]	94 26 54	[illegible]	96 5 41	[illegible]	97 44 12	[illegible]
	Saturn	W.	54 52 50	[illegible]	56 31 5	[illegible]	58 9 7	[illegible]	59 46 55	[illegible]
	Antares	W.	46 57 15	[illegible]	48 36 25	[illegible]	50 15 19	[illegible]	51 53 57	[illegible]
	Fomalhaut	E.	41 5 8	[illegible]	39 45 22	[illegible]	38 27 4	[illegible]	37 10 21	[illegible]
	Sun	E.	71 19 25	[illegible]	69 47 57	[illegible]	68 16 45	[illegible]	66 45 50	[illegible]
27	Spica	W.	105 52 58	[illegible]	107 29 59	[illegible]	109 6 45	[illegible]	110 43 17	[illegible]
	Saturn	W.	67 52 36	[illegible]	69 29 5	[illegible]	71 5 21	[illegible]	72 41 25	[illegible]
	Antares	W.	60 3 16	[illegible]	61 40 24	[illegible]	63 17 17	[illegible]	64 53 56	[illegible]
	Sun	E.	59 15 9	[illegible]	57 45 47	[illegible]	56 16 39	[illegible]	54 47 46	[illegible]
28	Saturn	W.	80 38 36	[illegible]	82 13 26	[illegible]	83 48 4	[illegible]	85 22 31	[illegible]
	Antares	W.	72 53 51	[illegible]	74 29 14	[illegible]	76 4 21	[illegible]	77 39 20	[illegible]
	Sun	E.	47 28 56	[illegible]	45 59 28	[illegible]	44 32 13	[illegible]	43 5 12	[illegible]
29	Saturn	W.	93 11 57	[illegible]	94 45 18	[illegible]	96 18 28	[illegible]	97 51 27	[illegible]
	Antares	W.	85 31 12	[illegible]	87 5 2	[illegible]	88 38 41	[illegible]	90 12 10	[illegible]
	Sun	E.	35 53 29	[illegible]	34 27 49	[illegible]	33 2 23	[illegible]	31 37 11	[illegible]
30	Saturn	W.	105 33 52	[illegible]	107 5 51	[illegible]	108 37 40	[illegible]	110 9 20	[illegible]
	Antares	W.	97 57 3	[illegible]	99 29 33	[illegible]	101 1 54	[illegible]	102 34 6	[illegible]
	α Aquilæ	W.	51 53 45	[illegible]	52 4 20	[illegible]	53 15 36	[illegible]	54 27 21	[illegible]
	Sun	E.	24 34 58	[illegible]	23 11 22	[illegible]	21 48 7	[illegible]	20 25 14	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to / Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Thur.	1	0 44 13.59	9.105	N. 4 45 23.4	+57.76	16 1.98	64.53	3 47.99	0.749
Frid.	2	0 47 52.18	9.111	5 8 27.1	57.54	16 1.70	64.55	3 30.07	0.744
Sat.	3	0 51 30.90	9.117	5 31 25.2	57.30	16 1.42	64.57	3 12.29	0.738
SUN.	4	0 55 9.78	9.124	5 54 17.5	+57.05	16 1.15	64.59	2 54.66	0.731
Mon.	5	0 58 48.82	9.131	6 17 3.5	56.78	16 0.88	64.62	2 37.19	0.724
Tues.	6	1 2 28.04	9.139	6 39 43.0	56.50	16 0.61	64.65	2 19.91	0.716
Wed.	7	1 6 7.46	9.147	7 2 15.6	+56.20	16 0.34	64.68	2 2.83	0.707
Thur.	8	1 9 47.10	9.156	7 24 40.8	55.89	16 0.07	64.72	1 45.95	0.698
Frid.	9	1 13 26.96	9.166	7 46 58.4	55.57	15 59.80	64.76	1 29.31	0.688
Sat.	10	1 17 7.08	9.177	8 9 8.1	+55.23	15 59.53	64.80	1 12.91	0.677
SUN.	11	1 20 47.45	9.188	8 31 9.5	54.88	15 59.27	64.84	0 56.78	0.666
Mon.	12	1 24 28.11	9.200	8 53 2.3	54.52	15 59.00	64.89	0 40.93	0.654
Tues.	13	1 28 9.07	9.213	9 14 46.1	+54.14	15 58.74	64.93	0 25.38	0.641
Wed.	14	1 31 50.34	9.227	9 36 20.8	53.75	15 58.47	64.98	0 10.14	0.628
Thur.	15	1 35 31.96	9.241	9 57 45.8	53.34	15 58.21	65.03	0 4.76	0.614
Frid.	16	1 39 13.92	9.256	10 19 1.0	+52.92	15 57.95	65.09	0 19.31	0.598
Sat.	17	1 42 56.26	9.272	10 40 6.1	52.49	15 57.68	65.15	0 33.49	0.582
SUN.	18	1 46 39.00	9.289	11 1 0.6	52.05	15 57.42	65.21	0 47.27	0.566
Mon.	19	1 50 22.14	9.306	11 21 44.4	+51.59	15 57.15	65.27	1 0.65	0.549
Tues.	20	1 54 5.71	9.324	11 42 17.1	51.12	15 56.89	65.33	1 13.60	0.531
Wed.	21	1 57 49.72	9.343	12 2 38.4	50.64	15 56.63	65.39	1 26.10	0.512
Thur.	22	2 1 34.19	9.363	12 22 47.9	+50.15	15 56.37	65.46	1 38.16	0.492
Frid.	23	2 5 19.14	9.383	12 42 45.4	49.64	15 56.11	65.52	1 49.73	0.472
Sat.	24	2 9 4.57	9.403	13 2 30.4	49.12	15 55.85	65.59	2 0.82	0.452
SUN.	25	2 12 50.50	9.424	13 22 2.8	+48.58	15 55.59	65.66	2 11.42	0.431
Mon.	26	2 16 36.94	9.446	13 41 22.1	48.03	15 55.34	65.73	2 21.50	0.410
Tues.	27	2 20 23.90	9.468	14 0 28.0	47.46	15 55.09	65.80	2 31.08	0.388
Wed.	28	2 24 11.38	9.490	14 19 20.1	+46.88	15 54.84	65.88	2 40.12	0.366
Thur.	29	2 27 59.40	9.512	14 37 58.2	46.28	15 54.59	65.95	2 48.64	0.344
Frid.	30	2 31 47.96	9.534	14 56 21.7	45.67	15 54.35	66.03	2 56.62	0.322
Sat.	31	2 35 37.05	9.557	N. 15 14 30.6	+45.05	15 54.11	66.10	3 4.06	0.299

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Thur.	1	0 44 13.02	9.107	N. 4 45 19.8	+57.77	3 48.04	0.749	0 40 24.98
Frid.	2	0 47 51.65	9.112	5 8 23.7	57.55	3 30.12	0.744	0 44 21.53
Sat.	3	0 51 30.42	9.118	5 31 22.1	57.31	3 12.33	0.738	0 48 18.09
SUN.	4	0 55 9.33	9.125	5 54 14.7	+57.06	2 54.69	0.731	0 52 14.64
Mon.	5	0 58 48.42	9.132	6 17 1.0	56.79	2 37.23	0.724	0 56 11.19
Tues.	6	1 2 27.69	9.140	6 39 40.8	56.51	2 19.94	0.716	1 0 7.75
Wed.	7	1 6 7.15	9.149	7 2 13.6	+56.22	2 2.85	0.708	1 4 4.30
Thur.	8	1 9 46.83	9.158	7 24 39.2	55.91	1 45.97	0.699	1 8 0.85
Frid.	9	1 13 26.74	9.168	7 46 57.1	55.58	1 29.33	0.688	1 11 57.41
Sat.	10	1 17 6.89	9.179	8 9 7.0	+55.24	1 12.93	0.677	1 15 53.96
SUN.	11	1 20 47.31	9.190	8 31 8.6	54.89	0 56.79	0.666	1 19 50.52
Mon.	12	1 24 28.01	9.200	8 53 1.7	54.52	0 40.94	0.654	1 23 47.07
Tues.	13	1 28 9.00	9.215	9 14 45.8	+54.14	0 25.38	0.642	1 27 43.62
Wed.	14	1 31 50.32	9.229	9 36 20.6	53.75	0 10.14	0.629	1 31 40.18
Thur.	15	1 35 31.97	9.243	9 57 45.9	53.35	0 4.77	0.614	1 35 36.73
Frid.	16	1 39 13.97	9.258	10 19 1.3	+52.93	0 19.32	0.599	1 39 33.29
Sat.	17	1 42 56.35	9.274	10 40 6.6	52.50	0 33.49	0.583	1 43 29.84
SUN.	18	1 46 39.12	9.291	11 1 1.3	52.06	0 47.26	0.566	1 47 26.40
Mon.	19	1 50 22.29	[illegible]	11 21 45.3	+51.60	1 0.66	0.549	1 51 22.95
Tues.	20	1 54 5.90	9.326	11 42 [illegible]	51.13	1 13.61	0.531	1 55 19.51
Wed.	21	1 57 49.94	9.345	12 2 30.6	50.65	1 26.12	0.512	1 59 16.06
Thur.	22	2 1 34.45	9.364	12 22 40.3	+50.15	1 38.17	0.492	2 3 12.62
Frid.	23	2 5 19.42	9.384	12 42 46.9	49.64	1 49.75	0.472	2 7 9.17
Sat.	24	2 9 4.89	9.405	13 2 32.1	49.12	2 0.84	0.452	2 11 5.72
SUN.	25	2 12 50.85	9.426	13 22 4.6	+48.58	2 11.43	0.431	2 15 2.28
Mon.	26	2 16 37.31	9.447	13 41 24.0	48.03	2 21.52	0.410	2 18 58.83
Tues.	27	2 20 24.30	9.469	14 0 30.0	47.46	2 31.09	0.388	2 22 55.39
Wed.	28	2 24 11.[illegible]	9.491	14 19 22.2	+46.88	2 40.14	0.366	2 26 51.95
Thur.	29	2 27 [illegible]	9.513	14 37 0.3	[illegible]	2 48.65	0.344	2 30 48.50
Frid.	30	2 31 48.42	9.535	14 56 24.0	45.68	2 56.63	0.322	2 34 45.06
Sat.	31	2 35 37.54	[illegible]	N. 15 14 32.9	+45.[illegible]	3 4.07	0.299	2 38 41.61

NOTE.—The sun's [illegible] for mean noon may be assumed the same as that for apparent noon. The sign + prefixed to the [illegible] north declinations are increasing.

Diff. for 1 Hour [illegible] (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	λ′	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	91	12 1 39.8	1 15.2	147.88	+ 0.23	0.0000100	+52.4	23 15 45.73
2	92	13 0 48.0	0 23.3	147.80	0.30	0.0001355	52.1	23 11 49.83
3	93	13 59 54.2	59 29.4	147.71	0.34	0.0002601	51.8	23 7 53.92
4	94	14 58 58.2	58 33.3	147.62	+ 0.36	0.0003841	+51.5	23 3 58.01
5	95	15 58 0.1	57 35.0	147.53	0.34	0.0005073	51.3	23 0 2.10
6	96	16 56 59.7	56 34.5	147.44	0.30	0.0006299	51.0	22 56 6.19
7	97	17 55 57.1	55 31.8	147.34	+ 0.23	0.0007518	+50.7	22 52 10.29
8	98	18 54 52.1	54 26.7	147.24	0.13	0.0008732	50.5	22 48 14.38
9	99	19 53 45.0	53 19.5	147.15	+ 0.02	0.0009942	50.3	22 44 18.47
10	100	20 52 35.4	52 9.8	147.06	− 0.11	0.0011145	+50.1	22 40 22.56
11	101	21 51 23.7	50 57.9	146.96	0.24	0.0012347	50.0	22 36 26.66
12	102	22 50 9.6	49 43.7	146.87	0.37	0.0013548	49.9	22 32 30.75
13	103	23 48 53.3	48 27.3	146.78	− 0.49	0.0014746	+49.9	22 28 34.84
14	104	24 47 34.9	47 8.8	146.69	0.60	0.0015943	49.9	22 24 38.93
15	105	25 46 14.4	45 48.2	146.60	0.69	0.0017142	49.9	22 20 43.02
16	106	26 44 51.8	44 25.4	146.52	− 0.76	0.0018340	+49.9	22 16 47.11
17	107	27 43 27.3	43 0.8	146.44	0.79	0.0019537	49.9	22 12 51.20
18	108	28 42 0.8	41 34.2	146.36	0.79	0.0020735	49.9	22 8 55.30
19	109	29 40 32.5	40 5.7	146.28	− 0.78	0.0021931	+49.8	22 4 59.39
20	110	30 39 2.4	38 35.5	146.21	0.72	0.0023126	49.7	22 1 3.48
21	111	31 37 30.7	37 3.7	146.14	0.65	0.0024316	49.5	21 57 7.57
22	112	32 35 57.3	35 30.2	146.07	− 0.54	0.0025504	+49.3	21 53 11.66
23	113	33 34 22.3	33 55.0	146.01	0.42	0.0026685	49.1	21 49 15.75
24	114	34 32 45.8	32 18.4	145.94	0.29	0.0027861	48.8	21 45 19.84
25	115	35 31 7.6	30 40.1	145.88	− 0.15	0.0029026	+48.4	21 41 23.93
26	116	36 29 28.0	29 0.3	145.81	− 0.02	0.0030181	47.9	21 37 28.02
27	117	37 27 46.7	27 18.9	145.75	+ 0.10	0.0031324	47.3	21 33 32.12
28	118	38 26 3.9	25 36.0	145.68	+ 0.19	0.0032453	+46.7	21 29 36.21
29	119	39 24 19.5	23 51.4	145.62	0.27	0.0033569	46.1	21 25 40.30
30	120	40 22 33.6	22 5.4	145.55	0.32	0.0034668	45.5	21 21 44.39
31	121	41 20 45.9	20 17.6	145.48	+ 0.35	0.0035752	+44.8	21 17 48.48

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ′ to the mean equinox of January $0^d.0$.

Diff. for 1 Hour, $-9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 54.4	14 51.9	54 35.6	-0.79	54 26.7	-0.70	6		29.0
2	14 49.8	14 48.0	54 18.9	0.60	54 12.2	0.51	0 9.7	1.73	0.3
3	14 46.5	14 45.4	54 6.7	0.40	54 2.6	0.28	0 51.9	1.79	1.3
4	14 44.6	14 44.3	53 59.9	-0.16	53 58.7	-0.03	1 35.9	1.88	2.3
5	14 44.5	14 45.1	53 59.2	+0.12	54 1.5	+0.28	2 22.2	1.98	3.3
6	14 46.2	14 48.0	54 5.8	0.44	54 12.1	0.61	3 10.8	2.07	4.3
7	14 50.3	14 53.2	54 20.5	+0.80	54 31.2	+0.99	4 1.5	2.14	5.3
8	14 56.7	15 0.9	54 44.2	1.18	54 59.5	1.38	4 53.3	2.17	6.3
9	15 5.7	15 11.1	55 17.2	1.57	55 37.1	1.75	5 45.2	2.15	7.3
10	15 17.1	15 23.7	55 59.2	+1.93	56 23.3	+2.08	6 36.4	2.11	8.3
11	15 30.7	15 38.2	56 49.2	2.22	57 16.5	2.33	7 26.5	2.06	9.3
12	15 45.9	15 53.9	57 45.0	2.40	58 14.1	2.43	8 15.5	2.03	10.3
13	16 1.8	16 9.6	58 43.2	+2.40	59 11.8	+2.33	9 4.0	2.02	11.3
14	16 17.0	16 23.9	59 39.2	[illegible]	60 4.6	2.01	9 53.0	2.07	12.3
15	16 30.1	16 35.4	60 27.4	1.75	60 46.7	1.45	10 43.6	2.16	13.3
16	16 39.6	16 42.6	61 2.1	+1.1[illegible]	61 13.1	+0.71	11 37.0	2.30	14.3
17	16 44.3	16 44.6	61 1[illegible].2	+0.1[illegible]	61 20.3	-0.11	12 34.3	2.47	15.3
18	16 43.5	16 41.2	61 16.5	-0.52	61 7.9	0.90	13 35.6	2.60	16.3
19	16 37.6	16 33.1	60 54.0	-1.2[illegible]	60 38.1	-1.54	14 39.7	2.70	17.3
20	16 27.6	16 21.4	60 17.9	1.7[illegible]	[illegible]	1.98	15 44.0	2.64	18.3
21	16 14.6	16 7.5	59 3[illegible].4	2.12	[illegible] 4.3	2.20	16 45.7	2.49	19.3
22	16 0.3	15 51.0	58 37.6	2.21	58 10.8	2.22	17 42.9	2.27	20.3
23	15 45.8	[illegible]	57 44.4	2.17	57 17.7	2.09	18 34.9	2.06	21.3
24	15 32.1	15 25.8	56 54.2	1.9[illegible]	[illegible]	1.85	19 22.3	1.89	22.3
25	15 19.8	15 14.4	56 9.2	-1.74	55 49.2	-1.60	20 6.2	1.77	23.3
26	15 9.4	15 4.9	[illegible]	[illegible]	55 14.2	1.32	20 47.8	1.70	24.3
27	15 0.8	14 57.2	54 59.3	1.17	54 46.1	1.03	21 28.3	1.68	25.3
28	14 54.1	14 51.4	54 34.6	[illegible]	54 24.6	-0.77	22 8.9	1.70	26.3
29	14 4[illegible].1	14 47.2	54 16.2	[illegible]	54 [illegible].2	0.52	22 50.4	1.76	27.3
30	14 45.6	14 44.5	54 3.6	0.4[illegible]	53 5[illegible].4	0.29	23 33.7	1.85	28.3
31	14 43.7	14 43.4	53 5[illegible].6	0.18	53 55.2	-0.07	6		29.3

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 1.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	0 10 1.04	1.8126	N. 5 21 53.1	13.622
1	0 11 49.81	1.8132	5 35 29.0	13.584
2	0 13 38.62	1.8138	5 49 3.2	13.556
3	0 15 27.47	1.8145	6 2 35.8	13.528
4	0 17 16.36	1.8153	6 16 6.6	13.499
5	0 19 5.30	1.8161	6 29 35.6	13.469
6	0 20 54.29	1.8169	6 43 2.9	13.439
7	0 22 43.33	1.8178	6 56 28.3	13.407
8	0 24 32.43	1.8187	7 9 51.7	13.374
9	0 26 21.58	1.8198	7 23 13.1	13.340
10	0 28 10.80	1.8209	7 36 32.5	13.306
11	0 30 0.09	1.8220	7 49 49.8	13.271
12	0 31 49.44	1.8232	8 3 5.0	13.236
13	0 33 38.87	1.8245	8 16 18.1	13.199
14	0 35 28.38	1.8258	8 29 28.9	13.161
15	0 37 17.96	1.8271	8 42 37.4	13.122
16	0 39 7.63	1.8286	8 55 43.6	13.084
17	0 40 57.39	1.8301	9 8 47.5	13.045
18	0 42 47.24	1.8316	9 21 49.0	13.005
19	0 44 37.18	1.8332	9 34 48.1	12.965
20	0 46 27.22	1.8348	9 47 44.6	12.921
21	0 48 17.36	1.8365	10 0 38.6	12.878
22	0 50 7.60	1.8383	10 13 30.0	12.834
23	0 51 57.95	1.8402	N.10 26 18.7	12.790

FRIDAY 2.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	0 53 48.41	1.8419	N.10 39 4.8	12.746
1	0 55 38.98	1.8438	10 51 48.2	12.699
2	0 57 29.67	1.8457	11 4 28.7	12.652
3	0 59 20.47	1.8477	11 17 6.4	12.604
4	1 1 11.39	1.8498	11 29 41.2	12.556
5	1 3 2.44	1.8519	11 42 13.1	12.507
6	1 4 53.62	1.8541	11 54 42.1	12.458
7	1 6 44.93	1.8563	12 7 8.1	12.406
8	1 8 36.37	1.8585	12 19 30.9	12.354
9	1 10 27.95	1.8607	12 31 50.6	12.302
10	1 12 19.66	1.8631	12 44 7.2	12.250
11	1 14 11.52	1.8655	12 56 20.6	12.196
12	1 16 3.52	1.8679	13 8 30.7	12.141
13	1 17 55.67	1.8704	13 20 37.5	12.086
14	1 19 47.97	1.8729	13 32 41.0	12.030
15	1 21 40.42	1.8755	13 44 41.1	11.972
16	1 23 33.03	1.8782	13 56 37.7	11.914
17	1 25 25.80	1.8808	14 8 30.8	11.856
18	1 27 18.72	1.8834	14 20 20.4	11.797
19	1 29 11.81	1.8862	14 32 6.4	11.737
20	1 31 5.07	1.8890	14 43 48.8	11.676
21	1 32 58.49	1.8918	14 55 27.5	11.613
22	1 34 52.08	1.8947	15 7 2.4	11.551
23	1 36 45.85	1.8977	15 18 33.6	11.488
24	1 38 39.80	1.9006	N.15 30 1.0	11.424

SATURDAY 3.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	1 38 39.80	1.9006	N.15 30 1.0	11.424
1	1 40 33.92	1.9035	15 41 24.5	11.358
2	1 42 28.22	1.9066	15 52 44.0	11.293
3	1 44 22.71	1.9097	16 3 59.6	11.227
4	1 46 17.38	1.9127	16 15 11.2	11.159
5	1 48 12.23	1.9158	16 26 18.7	11.091
6	1 50 7.27	1.9189	16 37 22.1	11.022
7	1 52 2.50	1.9222	16 48 21.4	10.952
8	1 53 57.93	1.9254	16 59 16.4	10.881
9	1 55 53.55	1.9287	17 10 7.1	10.809
10	1 57 49.37	1.9320	17 20 53.5	10.737
11	1 59 45.39	1.9353	17 31 35.6	10.665
12	2 1 41.60	1.9386	17 42 13.3	10.592
13	2 3 38.02	1.9420	17 52 46.6	10.517
14	2 5 34.64	1.9454	18 3 15.3	10.441
15	2 7 31.47	1.9489	18 13 39.5	10.366
16	2 9 28.51	1.9523	18 23 59.2	10.289
17	2 11 25.75	1.9557	18 34 14.2	10.211
18	2 13 23.20	1.9592	18 44 24.5	10.132
19	2 15 20.86	1.9628	18 54 30.1	10.053
20	2 17 18.74	1.9664	19 4 30.9	9.973
21	2 19 16.83	1.9700	19 14 26.9	9.892
22	2 21 15.14	1.9737	19 24 18.0	9.811
23	2 23 13.67	1.9772	N.19 34 4.2	9.728

SUNDAY 4.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	2 25 12.41	1.9808	N.19 43 45.4	9.645
1	2 27 11.37	1.9845	19 53 21.6	9.561
2	2 29 10.55	1.9882	20 2 52.7	9.477
3	2 31 9.96	1.9920	20 12 18.8	9.392
4	2 33 9.59	1.9957	20 21 39.7	9.305
5	2 35 9.44	1.9994	20 30 55.4	9.217
6	2 37 9.52	2.0032	20 40 5.8	9.129
7	2 39 9.82	2.0069	20 49 10.9	9.041
8	2 41 10.35	2.0107	20 58 10.7	8.952
9	2 43 11.10	2.0144	21 7 5.1	8.862
10	2 45 12.08	2.0182	21 15 54.1	8.770
11	2 47 13.28	2.0220	21 24 37.5	8.678
12	2 49 14.72	2.0259	21 33 15.4	8.586
13	2 51 16.39	2.0297	21 41 47.7	8.492
14	2 53 18.28	2.0334	21 50 14.4	8.398
15	2 55 20.40	2.0372	21 58 35.5	8.304
16	2 57 22.75	2.0411	22 6 50.9	8.208
17	2 59 25.33	2.0450	22 15 0.5	8.111
18	3 1 28.15	2.0488	22 23 4.2	8.014
19	3 3 31.19	2.0526	22 31 2.1	7.916
20	3 5 34.46	2.0564	22 38 54.1	7.817
21	3 7 37.96	2.0602	22 46 40.2	7.718
22	3 9 41.69	2.0641	22 54 20.3	7.618
23	3 11 45.65	2.0679	23 1 54.4	7.517
24	3 13 49.84	2.0717	N.23 9 22.4	7.416

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 5.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	3 13 49.84	[illegible]	N 23 9 22.4	7.416
1	3 15 54.26	[illegible]	23 16 44.3	7.313
2	3 17 58.90	[illegible]	23 24 0.0	7.210
3	3 20 3.77	[illegible]	23 31 9.5	[illegible]
4	3 22 8.87	[illegible]	23 38 12.8	[illegible]
5	3 24 14.19	[illegible]	23 45 9.7	[illegible]
6	3 26 19.73	[illegible]	23 52 0.3	[illegible]
7	3 28 25.50	[illegible]	23 58 44.6	[illegible]
8	3 30 31.49	[illegible]	24 5 22.4	[illegible]
9	3 32 37.71	[illegible]	24 11 53.8	[illegible]
10	3 34 44.15	[illegible]	24 18 18.7	[illegible]
11	3 36 50.80	[illegible]	24 24 37.0	[illegible]
12	3 38 57.67	[illegible]	24 30 48.7	[illegible]
13	3 41 4.76	[illegible]	24 36 53.8	[illegible]
14	3 43 12.07	[illegible]	24 42 52.2	[illegible]
15	3 45 19.59	[illegible]	24 48 44.0	[illegible]
16	3 47 27.32	[illegible]	24 54 29.0	[illegible]
17	3 49 35.26	[illegible]	25 0 7.2	[illegible]
18	3 51 43.42	[illegible]	25 5 38.5	[illegible]
19	3 53 51.78	[illegible]	25 11 2.9	[illegible]
20	3 56 0.35	[illegible]	25 16 20.5	[illegible]
21	3 58 9.12	[illegible]	25 21 31.2	[illegible]
22	4 0 18.09	[illegible]	25 26 34.9	[illegible]
23	4 2 27.27	[illegible]	N.25 31 31.5	[illegible]

TUESDAY 6.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	4 4 36.65	[illegible]	N.25 36 21.1	[illegible]
1	4 6 46.22	[illegible]	25 41 3.6	[illegible]
2	4 8 55.98	[illegible]	25 45 38.9	[illegible]
3	4 11 5.94	[illegible]	25 50 7.1	4.410
4	4 13 16.09	[illegible]	25 54 28.1	[illegible]
5	4 15 26.41	[illegible]	25 58 41.9	[illegible]
6	4 17 [illegible]	[illegible]	26 2 48.4	[illegible]
7	4 19 47.61	[illegible]	26 6 47.6	[illegible]
8	4 21 58.48	[illegible]	26 10 39.4	[illegible]
9	4 24 9.53	[illegible]	26 14 23.9	[illegible]
10	4 26 20.75	[illegible]	26 18 1.0	[illegible]
11	4 28 32.14	[illegible]	26 21 30.7	[illegible]
12	4 30 43.[illegible]	[illegible]	26 24 52.9	[illegible]
13	4 32 55.41	[illegible]	26 28 7.6	[illegible]
14	4 35 7.[illegible]	[illegible]	26 31 14.8	[illegible]
15	4 37 19.33	[illegible]	26 34 14.5	[illegible]
16	4 39 31.52	[illegible]	26 [illegible] 6.6	[illegible]
17	4 41 43.[illegible]	[illegible]	26 [illegible] 51.1	[illegible]
18	4 43 56.37	[illegible]	26 42 27.9	[illegible]
19	4 46 9.[illegible]	[illegible]	26 44 57.1	[illegible]
20	4 48 21.[illegible]	[illegible]	26 47 [illegible]	[illegible]
21	4 50 34.72	[illegible]	26 [illegible]	[illegible]
22	4 52 47.[illegible]	[illegible]	26 51 [illegible]	[illegible]
23	4 55 0.[illegible]	[illegible]	26 53 [illegible]	[illegible]
24	4 57 14.[illegible]	[illegible]	N.26 55 27.3	[illegible]

WEDNESDAY 7.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	4 57 14.29	[illegible]	N 26 55 27.3	1.777
1	4 59 27.73	[illegible]	26 57 10.0	[illegible]
2	5 1 41.29	[illegible]	26 58 44.9	[illegible]
3	5 3 54.98	[illegible]	27 0 12.0	[illegible]
4	5 6 8.78	[illegible]	27 1 31.2	[illegible]
5	5 8 22.68	[illegible]	27 2 42.5	[illegible]
6	5 10 36.69	[illegible]	27 3 45.8	[illegible]
7	5 12 50.80	[illegible]	27 4 41.2	[illegible]
8	5 15 5.01	[illegible]	27 5 28.7	[illegible]
9	5 17 19.32	[illegible]	27 6 8.3	[illegible]
10	5 19 33.72	[illegible]	27 6 39.9	[illegible]
11	5 21 48.20	[illegible]	27 7 3.5	[illegible]
12	5 24 2.77	[illegible]	27 7 19.1	[illegible]
13	5 26 17.42	[illegible]	27 7 26.6	[illegible]
14	5 28 32.14	[illegible]	27 7 26.1	[illegible]
15	5 30 46.94	[illegible]	27 7 17.6	[illegible]
16	5 33 1.81	[illegible]	27 7 1.0	[illegible]
17	5 35 16.74	[illegible]	27 6 36.3	[illegible]
18	5 37 31.72	[illegible]	27 6 3.5	[illegible]
19	5 39 46.76	[illegible]	27 5 22.6	[illegible]
20	5 42 1.85	[illegible]	27 4 33.6	[illegible]
21	5 44 17.00	[illegible]	27 3 36.5	[illegible]
22	5 46 32.19	[illegible]	27 2 31.3	1.154
23	5 48 47.41	[illegible]	N 27 1 18.0	[illegible]

THURSDAY 8.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	5 51 2.67	[illegible]	N.26 59 56.5	[illegible]
1	5 53 17.[illegible]	[illegible]	26 58 26.9	[illegible]
2	5 55 33.28	[illegible]	26 56 49.1	[illegible]
3	5 57 48.63	[illegible]	26 55 3.8	1.811
4	6 0 4.00	[illegible]	26 53 9.1	[illegible]
5	6 2 19.38	[illegible]	26 51 6.9	[illegible]
6	6 4 34.78	[illegible]	26 48 56.5	[illegible]
7	6 6 50.19	[illegible]	26 46 38.0	[illegible]
8	6 9 5.60	[illegible]	26 44 11.3	[illegible]
9	6 11 21.01	[illegible]	26 41 36.4	[illegible]
10	6 13 36.42	[illegible]	26 38 53.4	[illegible]
11	6 15 51.82	[illegible]	26 36 2.3	[illegible]
12	6 18 7.21	[illegible]	26 33 3.0	[illegible]
13	6 20 22.59	[illegible]	26 29 55.5	[illegible]
14	6 22 37.95	[illegible]	26 26 39.9	[illegible]
15	6 24 53.29	[illegible]	26 23 16.2	[illegible]
16	6 27 8.61	[illegible]	26 19 44.4	[illegible]
17	6 29 23.90	[illegible]	26 16 4.4	[illegible]
18	6 31 39.16	[illegible]	26 12 16.3	[illegible]
19	6 33 54.38	[illegible]	26 8 20.1	[illegible]
20	6 36 9.57	[illegible]	26 4 15.8	[illegible]
21	6 38 24.72	[illegible]	26 0 3.4	[illegible]
22	6 40 [illegible]	[illegible]	25 55 42.9	[illegible]
23	6 42 54.[illegible]	[illegible]	25 51 14.3	[illegible]
24	6 45 [illegible]	[illegible]	N.25 46 37.7	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	6 45 9.87	2.2496	N.25 46 37.7	4.677
1	6 47 24.82	2.2487	25 41 53.1	4.811
2	6 49 39.71	2.2477	25 37 0.4	4.945
3	6 51 54.54	2.2467	25 31 59.7	5.078
4	6 54 9.31	2.2456	25 26 51.0	5.212
5	6 56 24.01	2.2445	25 21 34.3	5.345
6	6 58 38.65	2.2434	25 16 9.6	5.477
7	7 0 53.22	2.2422	25 10 37.0	5.610
8	7 3 7.71	2.2409	25 4 56.4	5.742
9	7 5 22.12	2.2396	24 59 7.9	5.874
10	7 7 36.46	2.2383	24 53 11.5	6.005
11	7 9 50.72	2.2369	24 47 7.3	6.136
12	7 12 4.89	2.2355	24 40 55.2	6.267
13	7 14 18.98	2.2341	24 34 35.3	6.398
14	7 16 32.98	2.2326	24 28 7.5	6.528
15	7 18 46.89	2.2311	24 21 31.9	6.657
16	7 21 0.71	2.2295	24 14 48.6	6.787
17	7 23 14.43	2.2279	24 7 57.5	6.916
18	7 25 28.06	2.2263	24 0 58.7	7.044
19	7 27 41.59	2.2247	23 53 52.2	7.172
20	7 29 55.02	2.2230	23 46 38.0	7.300
21	7 32 8.35	2.2213	23 39 16.2	7.427
22	7 34 21.58	2.2197	23 31 46.7	7.554
23	7 36 34.71	2.2179	N.23 24 9.7	7.680

SATURDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	7 38 47.73	2.2162	N.23 16 25.1	7.807
1	7 41 0.64	2.2143	23 8 32.9	7.933
2	7 43 13.45	2.2126	23 0 33.2	8.057
3	7 45 26.15	2.2108	22 52 26.1	8.181
4	7 47 38.74	2.2089	22 44 11.5	8.305
5	7 49 51.22	2.2070	22 35 49.5	8.428
6	7 52 3.58	2.2051	22 27 20.1	8.551
7	7 54 15.83	2.2032	22 18 43.3	8.674
8	7 56 27.97	2.2014	22 9 59.2	8.795
9	7 58 40.00	2.1995	22 1 7.9	8.916
10	8 0 51.91	2.1976	21 52 9.3	9.037
11	8 3 3.71	2.1957	21 43 3.4	9.158
12	8 5 15.39	2.1937	21 33 50.3	9.277
13	8 7 26.96	2.1918	21 24 30.1	9.396
14	8 9 38.41	2.1899	21 15 2.8	9.515
15	8 11 49.75	2.1880	21 5 28.3	9.633
16	8 14 0.97	2.1860	20 55 46.8	9.749
17	8 16 12.07	2.1841	20 45 58.4	9.865
18	8 18 23.06	2.1822	20 36 3.0	9.981
19	8 20 33.93	2.1802	20 26 0.6	10.097
20	8 22 44.69	2.1783	20 15 51.3	10.212
21	8 24 55.33	2.1764	20 5 35.2	10.325
22	8 27 5.86	2.1746	19 55 12.3	10.438
23	8 29 16.28	2.1727	19 44 42.6	10.551
24	8 31 26.58	2.1708	N.19 34 6.1	10.663

SUNDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	8 31 26.58	2.1708	N.19 34 6.1	10.663
1	8 33 36.77	2.1689	19 23 23.0	10.774
2	8 35 46.85	2.1671	19 12 33.2	10.885
3	8 37 56.82	2.1652	19 1 36.8	10.995
4	8 40 6.68	2.1634	18 50 33.8	11.104
5	8 42 16.43	2.1616	18 39 24.3	11.212
6	8 44 26.07	2.1598	18 28 8.4	11.319
7	8 46 35.60	2.1580	18 16 46.0	11.426
8	8 48 45.03	2.1563	18 5 17.2	11.532
9	8 50 54.36	2.1547	17 53 42.1	11.637
10	8 53 3.59	2.1529	17 42 0.7	11.742
11	8 55 12.71	2.1512	17 30 13.1	11.846
12	8 57 21.73	2.1496	17 18 19.2	11.949
13	8 59 30.66	2.1480	17 6 19.2	12.051
14	9 1 39.49	2.1463	16 54 13.1	12.152
15	9 3 48.22	2.1447	16 42 0.9	12.253
16	9 5 56.86	2.1432	16 29 42.7	12.353
17	9 8 5.41	2.1418	16 17 18.5	12.452
18	9 10 13.88	2.1404	16 4 48.5	12.549
19	9 12 22.26	2.1390	15 52 12.6	12.646
20	9 14 30.56	2.1376	15 39 30.9	12.743
21	9 16 38.77	2.1362	15 26 43.4	12.839
22	9 18 46.90	2.1349	15 13 50.2	12.933
23	9 20 54.96	2.1336	N.15 0 51.4	13.027

MONDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	9 23 2.94	2.1324	N.14 47 47.0	13.120
1	9 25 10.85	2.1312	14 34 37.0	13.212
2	9 27 18.69	2.1301	14 21 21.6	13.302
3	9 29 26.46	2.1290	14 8 0.8	13.392
4	9 31 34.17	2.1280	13 54 34.6	13.482
5	9 33 41.82	2.1269	13 41 3.0	13.570
6	9 35 49.40	2.1259	13 27 26.2	13.657
7	9 37 56.93	2.1251	13 13 44.2	13.743
8	9 40 4.41	2.1242	12 59 57.0	13.828
9	9 42 11.84	2.1234	12 46 4.8	13.912
10	9 44 19.22	2.1227	12 32 7.6	13.996
11	9 46 26.56	2.1219	12 18 5.3	14.079
12	9 48 33.85	2.1212	12 3 58.1	14.160
13	9 50 41.10	2.1206	11 49 46.1	14.240
14	9 52 48.32	2.1201	11 35 29.3	14.318
15	9 54 55.52	2.1197	11 21 7.9	14.396
16	9 57 2.69	2.1192	11 6 41.8	14.473
17	9 59 9.83	2.1188	10 52 11.1	14.550
18	10 1 16.95	2.1185	10 37 35.8	14.625
19	10 3 24.05	2.1182	10 22 56.1	14.698
20	10 5 31.14	2.1181	10 8 12.0	14.771
21	10 7 38.22	2.1179	9 53 23.6	14.842
22	10 9 45.29	2.1178	9 38 31.0	14.912
23	10 11 52.36	2.1178	9 23 34.1	14.982
24	10 13 59.43	2.1178	N. 9 8 33.1	15.051

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TUESDAY 13.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	10 13 59.43	[illegible]	N 9 8 33.1	[illegible]
1	10 16 6.50	[illegible]	8 53 28.0	[illegible]
2	10 18 13.59	[illegible]	8 38 19.0	[illegible]
3	10 20 20.69	[illegible]	8 23 6.1	[illegible]
4	10 22 27.80	[illegible]	8 7 49.3	[illegible]
5	10 24 34.94	[illegible]	7 52 [illegible]	[illegible]
6	10 26 42.10	[illegible]	7 37 4.6	[illegible]
7	10 28 49.29	[illegible]	7 21 36.7	[illegible]
8	10 30 56.51	[illegible]	7 6 5.3	[illegible]
9	10 33 3.77	[illegible]	6 50 30.5	[illegible]
10	10 35 11.07	[illegible]	6 34 52.3	[illegible]
11	10 37 18.41	[illegible]	6 19 10.7	[illegible]
12	10 39 25.[illegible]	[illegible]	6 3 25.9	[illegible]
13	10 41 33.25	[illegible]	5 47 37.9	[illegible]
14	10 43 40.76	[illegible]	5 31 46.8	[illegible]
15	10 45 48.32	[illegible]	5 15 52.8	[illegible]
16	10 47 55.95	[illegible]	4 59 55.9	[illegible]
17	10 50 3.66	[illegible]	4 43 56.1	[illegible]
18	10 52 11.44	[illegible]	4 27 53.5	[illegible]
19	10 54 19.30	[illegible]	4 11 48.3	[illegible]
20	10 56 27.25	[illegible]	3 55 40.5	[illegible]
21	10 58 35.29	[illegible]	3 39 30.2	[illegible]
22	11 0 43.42	[illegible]	3 23 17.5	[illegible]
23	11 2 51.65	[illegible]	N 3 7 2.4	[illegible]

WEDNESDAY 14.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	11 4 59.98	[illegible]	N. 2 50 45.1	[illegible]
1	11 7 8.42	[illegible]	2 34 25.7	[illegible]
2	11 9 16.97	[illegible]	2 18 4.2	[illegible]
3	11 11 25.64	[illegible]	2 1 40.7	[illegible]
4	11 13 34.43	[illegible]	1 45 15.3	[illegible]
5	11 15 43.35	[illegible]	1 28 48.2	[illegible]
6	11 17 52.39	[illegible]	1 12 19.4	[illegible]
7	11 20 1.[illegible]	[illegible]	0 55 [illegible]	[illegible]
8	11 22 10.[illegible]	[illegible]	0 39 [illegible]	[illegible]
9	11 24 20.[illegible]	[illegible]	0 22 43.7	[illegible]
10	11 26 [illegible]	[illegible]	N 0 6 9.1	[illegible]
11	11 28 [illegible]	[illegible]	S 0 10 [illegible]	[illegible]
12	11 30 [illegible]	[illegible]	0 27 [illegible]	[illegible]
13	11 32 [illegible]	[illegible]	0 43 41.[illegible]	[illegible]
14	11 35 [illegible]	[illegible]	1 0 [illegible]	[illegible]
15	11 37 [illegible]	[illegible]	1 17 0.4	[illegible]
16	11 39 [illegible]	[illegible]	1 33 [illegible]	[illegible]
17	11 41 41.[illegible]	[illegible]	1 [illegible]	[illegible]
18	11 43 [illegible]	[illegible]	2 7 3.3	[illegible]
19	11 46 4.[illegible]	[illegible]	2 23 45.2	[illegible]
20	11 48 [illegible]	[illegible]	2 [illegible]	[illegible]
21	11 50 [illegible]	[illegible]	2 [illegible]	[illegible]
22	11 52 [illegible]	[illegible]	3 [illegible]	[illegible]
23	11 54 [illegible]	[illegible]	3 [illegible] 34.[illegible]	[illegible]
24	11 [illegible]	[illegible]	S 3 [illegible]	[illegible]

THURSDAY 15.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	11 57 3.04	[illegible]	S. 3 47 17.1	[illegible]
1	11 59 15.48	[illegible]	4 3 59.2	[illegible]
2	12 1 28.15	[illegible]	4 20 40.9	[illegible]
3	12 3 41.04	[illegible]	4 37 22.1	[illegible]
4	12 5 54.17	[illegible]	4 54 2.8	[illegible]
5	12 8 7.55	[illegible]	5 10 42.7	[illegible]
6	12 10 21.17	[illegible]	5 27 21.8	[illegible]
7	12 12 35.04	[illegible]	5 44 0.0	[illegible]
8	12 14 49.16	[illegible]	6 0 37.1	[illegible]
9	12 17 3.54	[illegible]	6 17 13.1	[illegible]
10	12 19 18.18	[illegible]	6 33 47.8	[illegible]
11	12 21 33.09	[illegible]	6 50 21.0	[illegible]
12	12 23 48.28	[illegible]	7 6 52.7	[illegible]
13	12 26 3.74	[illegible]	7 23 22.8	[illegible]
14	12 28 19.48	[illegible]	7 39 51.1	[illegible]
15	12 30 35.51	[illegible]	7 56 17.5	[illegible]
16	12 32 51.83	[illegible]	8 12 41.9	[illegible]
17	12 35 8.44	[illegible]	8 29 4.2	[illegible]
18	12 37 25.35	[illegible]	8 45 24.3	[illegible]
19	12 39 42.56	[illegible]	9 1 42.0	[illegible]
20	12 42 0.08	[illegible]	9 17 57.2	[illegible]
21	12 44 17.90	[illegible]	9 34 9.7	[illegible]
22	12 46 36.04	[illegible]	9 50 19.5	[illegible]
23	12 48 54.50	[illegible]	S.10 6 26.3	[illegible]

FRIDAY 16.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	12 51 13.28	[illegible]	S.10 22 30.1	[illegible]
1	12 53 32.38	[illegible]	10 38 30.8	[illegible]
2	12 55 51.81	[illegible]	10 54 28.2	[illegible]
3	12 58 11.58	[illegible]	11 10 22.2	[illegible]
4	13 0 31.68	[illegible]	11 26 12.6	[illegible]
5	13 2 52.12	[illegible]	11 41 59.4	[illegible]
6	13 5 12.91	[illegible]	11 57 42.4	[illegible]
7	13 7 34.04	[illegible]	12 13 21.4	[illegible]
8	13 9 55.52	[illegible]	12 28 56.4	[illegible]
9	13 12 17.35	[illegible]	12 44 27.2	[illegible]
10	13 14 39.54	[illegible]	12 59 53.6	[illegible]
11	13 17 2.[illegible]	[illegible]	13 15 15.5	[illegible]
12	13 19 24.98	[illegible]	13 30 32.9	[illegible]
13	13 21 48.24	[illegible]	13 45 45.5	[illegible]
14	13 24 11.87	[illegible]	14 0 53.3	[illegible]
15	13 26 35.87	[illegible]	14 15 56.1	[illegible]
16	13 29 0.24	[illegible]	14 30 53.7	[illegible]
17	13 31 24.98	[illegible]	14 45 46.0	[illegible]
18	13 33 50.[illegible]	[illegible]	15 0 33.0	[illegible]
19	13 36 15.[illegible]	[illegible]	15 15 14.4	[illegible]
20	13 38 41.45	[illegible]	15 29 50.1	[illegible]
21	13 41 7.[illegible]	[illegible]	15 44 20.1	[illegible]
22	13 43 34.11	[illegible]	15 58 44.1	[illegible]
23	13 46 1.11	[illegible]	16 13 2.0	[illegible]
24	13 48 [illegible]	[illegible]	S.16 27 13.7	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 17.			
	h m s	s	° ′ ″	″
0	13 48 28.70	2.4597	S.16 27 13.7	14.142
1	13 50 56.47	2.4660	16 41 19.1	14.036
2	13 53 24.62	2.4723	16 55 18.0	13.927
3	13 55 53.15	2.4787	17 9 10.3	13.815
4	13 58 22.07	2.4852	17 22 55.8	13.702
5	14 0 51.37	2.4916	17 36 34.5	13.587
6	14 3 21.06	2.4980	17 50 6.2	13.468
7	14 5 51.13	2.5043	18 3 30.7	13.348
8	14 8 21.58	2.5107	18 16 47.9	13.226
9	14 10 52.42	2.5172	18 29 57.8	13.102
10	14 13 23.64	2.5235	18 43 0.1	12.975
11	14 15 55.24	2.5297	18 55 54.8	12.847
12	14 18 27.21	2.5360	19 8 41.7	12.716
13	14 20 59.56	2.5423	19 21 20.7	12.582
14	14 23 32.29	2.5486	19 33 51.6	12.447
15	14 26 5.40	2.5549	19 46 14.3	12.310
16	14 28 38.88	2.5611	19 58 28.8	12.171
17	14 31 12.73	2.5672	20 10 34.8	12.029
18	14 33 46.95	2.5733	20 22 32.3	11.886
19	14 36 21.53	2.5794	20 34 21.1	11.741
20	14 38 56.48	2.5855	20 46 1.2	11.594
21	14 41 31.79	2.5914	20 57 32.4	11.445
22	14 44 7.45	2.5973	21 8 54.6	11.293
23	14 46 43.46	2.6032	S.21 20 7.6	11.140
	SUNDAY 18.			
0	14 49 19.83	2.6090	S.21 31 11.4	10.986
1	14 51 56.54	2.6147	21 42 5.9	10.829
2	14 54 33.59	2.6202	21 52 50.9	10.669
3	14 57 10.97	2.6257	22 3 26.2	10.508
4	14 59 48.68	2.6312	22 13 51.8	10.346
5	15 2 26.72	2.6367	22 24 7.7	10.182
6	15 5 5.09	2.6421	22 34 13.7	10.016
7	15 7 43.77	2.6472	22 44 9.6	9.848
8	15 10 22.75	2.6523	22 53 55.5	9.680
9	15 13 2.04	2.6573	23 3 31.2	9.509
10	15 15 41.63	2.6622	23 12 56.6	9.337
11	15 18 21.51	2.6670	23 22 11.6	9.163
12	15 21 1.67	2.6717	23 31 16.1	8.987
13	15 23 42.11	2.6762	23 40 10.0	8.810
14	15 26 22.82	2.6807	23 48 53.3	8.632
15	15 29 3.80	2.6851	23 57 25.8	8.452
16	15 31 45.03	2.6892	24 5 47.5	8.271
17	15 34 26.51	2.6933	24 13 58.3	8.088
18	15 37 8.23	2.6973	24 21 58.1	7.904
19	15 39 50.18	2.7011	24 29 46.8	7.719
20	15 42 32.36	2.7047	24 37 24.4	7.533
21	15 45 14.75	2.7082	24 44 50.8	7.346
22	15 47 57.35	2.7117	24 52 5.9	7.157
23	15 50 40.15	2.7149	24 59 9.6	6.96[illegible]
24	15 53 23.14	2.7179	S.25 6 2.0	[illegible]

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 19.			
	h m s	s	° ′ ″	″
0	15 53 23.14	2.7179	S.25 6 2.0	6.777
1	15 56 6.30	2.7208	25 12 42.9	6.585
2	15 58 49.64	2.7237	25 19 12.2	6.392
3	16 1 33.14	2.7263	25 25 30.0	6.199
4	16 4 16.79	2.7287	25 31 36.1	6.004
5	16 7 0.58	2.7309	25 37 30.5	5.809
6	16 9 44.50	2.7330	25 43 13.2	5.613
7	16 12 28.54	2.7349	25 48 44.1	5.417
8	16 15 12.69	2.7367	25 54 3.2	5.220
9	16 17 56.94	2.7383	25 59 10.5	5.022
10	16 20 41.28	2.7397	26 4 5.9	4.823
11	16 23 25.70	2.7409	26 8 49.3	4.624
12	16 26 10.19	2.7420	26 13 20.8	4.425
13	16 28 54.74	2.7428	26 17 40.3	4.226
14	16 31 39.33	2.7435	26 21 47.9	4.027
15	16 34 23.96	2.7440	26 25 43.5	3.826
16	16 37 8.61	2.7443	26 29 27.0	3.625
17	16 39 53.27	2.7444	26 32 58.5	3.425
18	16 42 37.94	2.7444	26 36 18.0	3.224
19	16 45 22.60	2.7442	26 39 25.4	3.023
20	16 48 7.24	2.7437	26 42 20.7	2.822
21	16 50 51.84	2.7430	26 45 4.0	2.621
22	16 53 36.40	2.7422	26 47 35.2	2.420
23	16 56 20.90	2.7412	S.26 49 54.4	2.220
	TUESDAY 20.			
0	16 59 5.34	2.7400	S.26 52 1.6	2.019
1	17 1 49.70	2.7386	26 53 56.7	1.818
2	17 4 33.97	2.7371	26 55 39.8	1.618
3	17 7 18.15	2.7353	26 57 10.9	1.418
4	17 10 2.21	2.7333	26 58 30.0	1.219
5	17 12 46.15	2.7312	26 59 37.2	1.020
6	17 15 29.96	2.7289	27 0 32.4	0.821
7	17 18 13.62	2.7264	27 1 15.7	0.623
8	17 20 57.13	2.7237	27 1 47.1	0.425
9	17 23 40.47	2.7208	27 2 6.7	0.228
10	17 26 23.63	2.7178	27 2 14.5	− 0.032
11	17 29 6.61	2.7147	27 2 10.5	+ 0.164
12	17 31 49.39	2.7113	27 1 54.8	0.359
13	17 34 31.96	2.7077	27 1 27.4	0.553
14	17 37 14.31	2.7039	27 0 48.4	0.747
15	17 39 56.43	2.7000	26 59 57.8	0.940
16	17 42 38.31	2.6959	26 58 55.6	1.132
17	17 45 19.94	2.6917	26 57 42.0	1.322
18	17 48 1.32	2.6874	26 56 17.0	1.512
19	17 50 42.43	2.6828	26 54 40.6	1.701
20	17 53 23.26	2.6781	26 52 52.9	1.888
21	17 56 3.80	2.6732	26 50 54.0	2.074
22	17 58 44.05	2.6682	26 48 44.0	2.260
23	18 1 23.99	2.6630	26 46 22.8	2.445
24	18 4 3.61	2.6577	S.26 43 50.6	2.627

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 21.			
	h m s	s	° ′ ″	″
0	18 4 3.61	[illegible]	S.26 43 [illegible]	[illegible]
1	18 6 42.91	[illegible]	26 41 7.5	[illegible]
2	18 9 21.8[illegible]	[illegible]	26 35 13.[illegible]	[illegible]
3	18 12 0.51	[illegible]	26 35 [illegible]	[illegible]
4	18 14 3[illegible].79	[illegible]	26 31 [illegible]	[illegible]
5	18 17 16.72	[illegible]	26 2[illegible] 2[illegible].7	[illegible]
6	18 19 54.29	[illegible]	26 24 49.9	[illegible]
7	18 22 31.49	[illegible]	26 21 2.6	[illegible]
8	18 25 8.31	[illegible]	26 17 4.9	[illegible]
9	18 27 44.74	[illegible]	26 12 5[illegible].5	[illegible]
10	18 30 20.7[illegible]	[illegible]	26 8 3[illegible].5	[illegible]
11	18 32 56.43	[illegible]	26 4 10.1	[illegible]
12	18 35 31.67	[illegible]	25 59 31.6	[illegible]
13	18 38 6.50	[illegible]	25 54 43.1	[illegible]
14	18 40 40.92	[illegible]	25 49 44.[illegible]	[illegible]
15	18 43 14.92	[illegible]	25 44 36.7	[illegible]
16	18 45 48.49	[illegible]	25 39 1[illegible]	[illegible]
17	18 48 21.63	[illegible]	25 33 51.4	[illegible]
18	18 50 54.34	[illegible]	25 2[illegible] 14.5	[illegible]
19	18 53 26.61	[illegible]	25 22 2[illegible].2	[illegible]
20	18 55 58.43	[illegible]	25 16 32.5	[illegible]
21	18 58 29.80	[illegible]	25 10 27.0	[illegible]
22	19 1 0.72	[illegible]	25 4 13.6	[illegible]
23	19 3 31.18	[illegible]	S.24 57 50.6	[illegible]
	THURSDAY 22.			
0	19 6 1.18	[illegible]	S.24 51 18.7	[illegible]
1	19 8 30.72	[illegible]	24 44 38.0	[illegible]
2	19 10 5[illegible].79	[illegible]	24 37 4[illegible].5	[illegible]
3	19 13 [illegible]	[illegible]	24 30 50.4	[illegible]
4	19 15 5[illegible].52	[illegible]	24 23 41.[illegible]	[illegible]
5	19 18 24.17	[illegible]	24 16 2[illegible]	[illegible]
6	19 20 51.35	[illegible]	24 9 5.5	[illegible]
7	19 23 1[illegible]	[illegible]	24 1 33.9	[illegible]
8	19 25 44.27	[illegible]	23 53 54.3	[illegible]
9	19 2[illegible] 10.[illegible]	[illegible]	23 46 6.7	[illegible]
10	19 30 35.[illegible]5	[illegible]	23 38 11.2	[illegible]
11	19 33 0.[illegible]	[illegible]	23 3[illegible] 7.[illegible]	[illegible]
12	19 35 24.[illegible]	[illegible]	23 21 [illegible].7	[illegible]
13	19 37 4[illegible]	[illegible]	23 1[illegible] 3[illegible]	[illegible]
14	19 40 11.40	[illegible]	23 5 11.[illegible]	[illegible]
15	19 42 34.[illegible]	[illegible]	22 56 3[illegible]	[illegible]
16	19 44 5[illegible]	[illegible]	22 47 [illegible].5	[illegible]
17	19 47 1[illegible]	[illegible]	22 [illegible]	[illegible]
18	19 4[illegible] 3[illegible]	[illegible]	22 [illegible] 14.[illegible]	[illegible]
19	19 52 [illegible]	[illegible]	22 21 1[illegible]	[illegible]
20	19 54 21.[illegible]	[illegible]	22 12 [illegible]	[illegible]
21	19 5[illegible] 4[illegible]	[illegible]	22 [illegible] 4[illegible].4	[illegible]
22	19 59 0.38	[illegible]	21 5[illegible] [illegible]	[illegible]
23	20 1 1[illegible].25	[illegible]	21 4[illegible] [illegible]	[illegible]
24	20 3 3[illegible]	[illegible]	S.21 [illegible]	[illegible]

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 23.			
	h m s	s	° ′ ″	″
0	20 3 37.6[illegible]	[illegible]	S.21 34 20.2	[illegible]
1	20 5 55.65	[illegible]	21 24 38.2	[illegible]
2	20 8 13.13	[illegible]	21 14 49.9	[illegible]
3	20 10 30.13	[illegible]	21 4 55.5	[illegible]
4	20 12 46.[illegible]6	[illegible]	20 54 55.0	[illegible]
5	20 15 2.71	[illegible]	20 44 48.4	[illegible]
6	20 17 18.28	[illegible]	20 34 35.9	[illegible]
7	20 19 33.3[illegible]	[illegible]	20 24 17.6	[illegible]
8	20 21 4[illegible].02	[illegible]	20 13 53.6	[illegible]
9	20 24 2.19	[illegible]	20 3 24.1	[illegible]
10	20 26 15.[illegible]	[illegible]	19 52 49.0	[illegible]
11	20 28 29.13	[illegible]	19 42 8.4	[illegible]
12	20 30 41.91	[illegible]	19 31 22.5	[illegible]
13	20 32 54.23	[illegible]	19 20 31.4	[illegible]
14	20 35 6.10	[illegible]	19 9 35.1	[illegible]
15	20 37 17.52	[illegible]	18 58 33.7	[illegible]
16	20 39 2[illegible].49	[illegible]	18 47 27.3	[illegible]
17	20 41 39.02	[illegible]	18 36 16.1	[illegible]
18	20 43 49.10	[illegible]	18 25 0.1	[illegible]
19	20 45 5[illegible].74	[illegible]	18 13 39.4	[illegible]
20	20 4[illegible] 7.95	[illegible]	18 2 14.0	[illegible]
21	20 50 16.73	[illegible]	17 50 44.1	[illegible]
22	20 52 25.0[illegible]	[illegible]	17 39 9.8	[illegible]
23	20 54 33.01	[illegible]	S.17 27 31.1	[illegible]
	SATURDAY 24.			
0	20 56 40.52	[illegible]	S.17 15 48.1	[illegible]
1	20 58 47.61	[illegible]	17 4 0.9	[illegible]
2	21 0 54.29	[illegible]	16 52 9.6	[illegible]
3	21 3 0.56	[illegible]	16 40 14.3	[illegible]
4	21 5 6.43	[illegible]	16 28 15.0	[illegible]
5	21 7 11.8[illegible]	[illegible]	16 16 11.8	[illegible]
6	21 9 16.95	[illegible]	16 4 4.9	[illegible]
7	21 11 21.02	[illegible]	15 51 54.3	[illegible]
8	21 13 25.91	[illegible]	15 39 40.0	[illegible]
9	21 15 2[illegible]	[illegible]	15 27 22.2	[illegible]
10	21 17 33.33	[illegible]	15 15 0.9	[illegible]
11	21 19 3[illegible].45	[illegible]	15 2 3[illegible].2	[illegible]
12	21 21 3[illegible].26	[illegible]	14 50 [illegible].1	[illegible]
13	21 23 41.67	[illegible]	14 3[illegible] 3[illegible]	[illegible]
14	21 25 43.72	[illegible]	14 25 2.3	[illegible]
15	21 27 45.40	[illegible]	14 12 24.[illegible]	[illegible]
16	21 [illegible] 4[illegible]	[illegible]	13 5[illegible] 44.2	[illegible]
17	21 31 4[illegible]	[illegible]	13 4[illegible] 0.6	[illegible]
18	21 [illegible] 4[illegible]	[illegible]	13 34 14.2	[illegible]
19	21 [illegible] 4[illegible]	[illegible]	13 21 25.0	[illegible]
20	21 [illegible] 4[illegible]	[illegible]	13 8 [illegible].0	[illegible]
21	21 [illegible] 4[illegible]	[illegible]	12 55 [illegible].3	[illegible]
22	21 41 47.[illegible]6	[illegible]	12 42 41.1	[illegible]
23	21 43 46.55	[illegible]	12 2[illegible] 41.3	[illegible]
24	21 45 4[illegible].22	[illegible]	S.12 16 [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 25.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	21 45 45.22	1.9752	S.12 16 39.0	13.058
1	21 47 43.58	1.9701	12 3 34.3	13.097
2	21 49 41.63	1.9649	11 50 27.3	13.136
3	21 51 39.37	1.9599	11 37 18.0	13.173
4	21 53 36.82	1.9550	11 24 6.5	13.210
5	21 55 33.97	1.9501	11 10 52.8	13.245
6	21 57 30.83	1.9453	10 57 37.1	13.279
7	21 59 27.41	1.9407	10 44 19.4	13.312
8	22 1 23.71	1.9361	10 30 59.7	13.344
9	22 3 19.74	1.9316	10 17 38.1	13.375
10	22 5 15.50	1.9271	10 4 14.7	13.405
11	22 7 10.99	1.9227	9 50 49.5	13.434
12	22 9 6.22	1.9184	9 37 22.6	13.462
13	22 11 1.20	1.9142	9 23 54.1	13.488
14	22 12 55.93	1.9101	9 10 24.0	13.515
15	22 14 50.41	1.9060	8 56 52.3	13.541
16	22 16 44.65	1.9021	8 43 19.1	13.565
17	22 18 38.66	1.8982	8 29 44.5	13.587
18	22 20 32.43	1.8944	8 16 8.6	13.609
19	22 22 25.98	1.8907	8 2 31.4	13.631
20	22 24 19.31	1.8869	7 48 52.9	13.652
21	22 26 12.41	1.8832	7 35 13.2	13.671
22	22 28 5.30	1.8798	7 21 32.4	13.689
23	22 29 57.99	1.8764	S. 7 7 50 5	13.707

MONDAY 26.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	22 31 50.47	1.8731	S. 6 54 7.6	13.723
1	22 33 42.76	1.8698	6 40 23.8	13.739
2	22 35 34.85	1.8666	6 26 39.0	13.754
3	22 37 26.75	1.8634	6 12 53.3	13.768
4	22 39 18.46	1.8604	5 59 6.8	13.781
5	22 41 10.00	1.8575	5 45 19.6	13.793
6	22 43 1.36	1.8546	5 31 31.7	13.804
7	22 44 52.55	1.8518	5 17 43.1	13.815
8	22 46 43.58	1.8491	5 3 53.9	13.824
9	22 48 34.44	1.8464	4 50 4.2	13.833
10	22 50 25.14	1.8438	4 36 14.0	13.841
11	22 52 15.70	1.8414	4 22 23.3	13.848
12	22 54 6.11	1.8390	4 8 32.2	13.854
13	22 55 56.38	1.8367	3 54 40.8	13.859
14	22 57 46.51	1.8343	3 40 49.1	13.864
15	22 59 36.50	1.8321	3 26 57.1	13.868
16	23 1 26.36	1.8301	3 13 4.9	13.871
17	23 3 16.11	1.8282	2 59 12.5	13.873
18	23 5 5.74	1.8262	2 45 20.1	13.874
19	23 6 55.25	1.8243	2 31 27.6	13.875
20	23 8 44.65	1.8221	2 17 35.1	13.874
21	23 10 33.94	1.8207	2 3 42.7	13.873
22	23 12 23.13	1.8190	1 49 50.4	13.872
23	23 14 12.22	1.8174	1 35 58.1	13.870
24	23 16 1.22	1.8159	S. 1 22 6.0	13.866

TUESDAY 27.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	23 16 1.22	1.8159	S. 1 22 6.0	13.866
1	23 17 50.13	1.8145	1 8 14.2	13.861
2	23 19 38.96	1.8132	0 54 22.7	13.857
3	23 21 27.71	1.8118	0 40 31.4	13.852
4	23 23 16.38	1.8106	0 26 40.5	13.845
5	23 25 4.98	1.8094	S. 0 12 50.0	13.837
6	23 26 53.51	1.8083	N. 0 1 0.0	13.829
7	23 28 41.98	1.8073	0 14 49.5	13.820
8	23 30 30.39	1.8064	0 28 38.4	13.811
9	23 32 18.75	1.8056	0 42 26.8	13.802
10	23 34 7.06	1.8048	0 56 14.6	13.790
11	23 35 55.32	1.8040	1 10 1.6	13.778
12	23 37 43.54	1.8034	1 23 47.9	13.765
13	23 39 31.73	1.8028	1 37 33.4	13.752
14	23 41 19.88	1.8022	1 51 18.1	13.738
15	23 43 8.00	1.8018	2 5 2.0	13.723
16	23 44 56.10	1.8015	2 18 44.9	13.708
17	23 46 44.18	1.8012	2 32 26.9	13.692
18	23 48 32.24	1.8009	2 46 7.9	13.675
19	23 50 20.29	1.8008	2 59 47.9	13.657
20	23 52 8.34	1.8007	3 13 26.7	13.638
21	23 53 56.38	1.8007	3 27 4.4	13.618
22	23 55 44.42	1.8007	3 40 40.9	13.598
23	23 57 32.46	1.8008	N. 3 54 16.2	13.577

WEDNESDAY 28.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	23 59 20.51	1.8009	N. 4 7 50.2	13.556
1	0 1 8.57	1.8012	4 21 22.9	13.534
2	0 2 56.65	1.8015	4 34 54.2	13.511
3	0 4 44.75	1.8018	4 48 24.2	13.488
4	0 6 32.87	1.8022	5 1 52.8	13.463
5	0 8 21.02	1.8028	5 15 19.8	13.438
6	0 10 9.21	1.8034	5 28 45.3	13.412
7	0 11 57.43	1.8040	5 42 9.2	13.385
8	0 13 45.69	1.8047	5 55 31.5	13.358
9	0 15 33.99	1.8054	6 8 52.2	13.330
10	0 17 22.33	1.8062	6 22 11.1	13.300
11	0 19 10.73	1.8071	6 35 28.2	13.271
12	0 20 59.18	1.8080	6 48 43.6	13.241
13	0 22 47.69	1.8090	7 1 57.1	13.209
14	0 24 36.26	1.8100	7 15 8.7	13.177
15	0 26 24.89	1.8111	7 28 18.4	13.145
16	0 28 13.59	1.8123	7 41 26.1	13.112
17	0 30 2.37	1.8136	7 54 31.8	13.077
18	0 31 51.23	1.8150	8 7 35.4	13.042
19	0 33 40.17	1.8163	8 20 36.9	13.007
20	0 35 29.19	1.8177	8 33 36.2	12.971
21	0 37 18.29	1.8191	8 46 33.4	12.934
22	0 39 7.48	1.8206	8 59 28.3	12.896
23	0 40 56.77	1.8222	9 12 20.9	12.857
24	0 42 46.15	1.8238	N. 9 25 11.1	12.817

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 29.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	0 42 46.15	[illegible]	N. 9 25 11.1	[illegible]
1	0 44 35.63	[illegible]	9 37 58.9	12.777
2	0 46 25.22	[illegible]	9 50 44.4	[illegible]
3	0 48 14.91	[illegible]	10 3 27.4	[illegible]
4	0 50 4.71	[illegible]	10 16 7.8	[illegible]
5	0 51 54.63	[illegible]	10 28 45.7	[illegible]
6	0 53 44.67	[illegible]	10 41 21.0	[illegible]
7	0 55 34.83	[illegible]	10 53 53.7	[illegible]
8	0 57 25.11	[illegible]	11 6 23.6	[illegible]
9	0 59 15.51	[illegible]	11 18 50.8	[illegible]
10	1 1 6.05	[illegible]	11 31 15.2	[illegible]
11	1 2 56.72	[illegible]	11 43 36.7	[illegible]
12	1 4 47.52	[illegible]	11 55 55.4	[illegible]
13	1 6 38.46	[illegible]	12 8 11.2	[illegible]
14	1 8 29.55	[illegible]	12 20 24.0	[illegible]
15	1 10 20.75	[illegible]	12 32 33.7	[illegible]
16	1 12 12.16	[illegible]	12 44 40.4	[illegible]
17	1 14 3.69	[illegible]	12 56 43.9	[illegible]
18	1 15 55.37	[illegible]	13 8 44.3	[illegible]
19	1 17 47.21	[illegible]	13 20 41.5	[illegible]
20	1 19 39.21	[illegible]	13 32 35.4	[illegible]
21	1 21 31.37	[illegible]	13 44 26.1	[illegible]
22	1 23 23.70	[illegible]	13 56 13.4	[illegible]
23	1 25 16.19	[illegible]	N 14 7 57.3	[illegible]

FRIDAY 30.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	1 27 8.85	[illegible]	N.14 19 37.7	[illegible]
1	1 29 1.6[illegible]	[illegible]	14 31 14.6	[illegible]
2	1 30 54.[illegible]	[illegible]	14 42 4[illegible]	[illegible]
3	1 32 47.[illegible]	[illegible]	14 54 17.9	[illegible]
4	1 34 41.25	[illegible]	15 5 44.1	[illegible]
5	1 36 34.[illegible]	[illegible]	15 17 6.6	[illegible]
6	1 38 2[illegible].53	[illegible]	15 28 25.3	[illegible]
7	1 40 22.45	[illegible]	15 39 40.3	[illegible]
8	1 42 16.[illegible]	[illegible]	15 50 51.4	[illegible]
9	1 44 1[illegible].[illegible]7	[illegible]	16 1 5[illegible].7	[illegible]
10	1 46 5.3[illegible]	[illegible]	16 13 [illegible]0	[illegible]
11	1 48 0.[illegible]	[illegible]	16 24 1[illegible]	[illegible]
12	1 49 54.[illegible]	[illegible]	16 34 5[illegible].7	[illegible]
13	1 51 [illegible]	[illegible]	16 45 4[illegible]	[illegible]
14	1 53 4[illegible]	[illegible]	16 56 [illegible]	[illegible]
15	1 55 4[illegible]	[illegible]	17 7 [illegible]	[illegible]
16	1 57 3[illegible]	[illegible]	17 1[illegible]	[illegible]
17	1 59 32.4[illegible]	[illegible]	17 [illegible]	[illegible]
18	2 1 25.[illegible]	[illegible]	17 [illegible]	[illegible]
19	2 3 2[illegible]	[illegible]	[illegible]	[illegible]
20	2 5 21.44	[illegible]	[illegible]	[illegible]
21	2 7 18.[illegible]	[illegible]	[illegible]	[illegible]
22	2 9 15.1[illegible]	[illegible]	[illegible]	[illegible]
23	2 11 12.37	[illegible]	[illegible]	[illegible]
24	2 13 9.[illegible]	[illegible]	N.1[illegible]	[illegible]

SATURDAY, MAY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	2 13 9.78	[illegible]	N.18 40 29.5	[illegible]

PHASES OF THE MOON

			d	h	m
●	New Moon	April	1	16	23.9
☽	First Quarter		9	20	26.8
○	Full Moon		16	18	25.4
☾	Last Quarter		23	9	47.9

			d	h
☾	Apogee	April	4	14.4
☾	Perigee		17	8.7

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
3	Sun	W.	15 16 53	3594	16 35 34	3576	17 54 35	3561	19 13 52	3547
	Mars	E.	67 23 33	3233	65 58 3	3237	64 32 38	3241	63 7 17	3244
	Pollux	E.	82 48 35	3064	81 19 41	3068	79 50 52	3071	78 22 7	3075
4	Sun	W.	25 53 4	3514	27 13 13	3510	28 33 26	3507	29 53 42	3506
	Mars	E.	56 1 30	3259	54 36 30	3261	53 11 33	3263	51 46 38	3265
	Pollux	E.	70 59 22	3089	69 30 59	3091	68 2 39	3094	66 34 22	3096
	Regulus	E.	107 53 38	3074	106 24 57	3076	104 56 18	3078	103 27 41	3079
5	Sun	W.	36 35 39	3495	37 56 9	3492	39 16 42	3489	40 37 18	3488
	Mars	E.	44 42 27	3270	43 17 40	3269	41 52 52	3269	40 28 4	3268
	Pollux	E.	59 13 25	3102	57 45 18	3102	56 17 11	3103	54 49 5	3103
	Regulus	E.	96 4 58	3083	94 36 28	3082	93 7 57	3082	91 39 26	3082
	Jupiter	E.	98 28 1	3064	96 59 7	3063	95 30 12	3063	94 1 17	3062
6	Sun	W.	47 20 59	3472	48 41 54	3469	50 2 53	3464	51 23 57	3459
	Venus	W.	17 13 41	3100	18 41 51	3094	20 10 8	3087	21 38 33	3081
	Mars	E.	33 23 46	3260	31 58 48	3258	30 33 47	3254	29 8 42	3252
	Pollux	E.	47 28 32	3101	46 0 23	3099	44 32 12	3098	43 4 0	3096
	Regulus	E.	84 16 29	3073	82 47 46	3070	81 19 0	3068	79 50 11	3064
	Jupiter	E.	86 36 23	3055	85 7 18	3052	83 38 9	3049	82 8 57	3046
7	Sun	W.	58 10 43	3431	59 32 24	3425	60 54 12	3418	62 16 8	3411
	Venus	W.	29 2 46	3044	30 32 4	3036	32 1 32	3027	33 31 11	3019
	Pollux	E.	35 42 27	3087	34 14 1	3085	32 45 33	3083	31 17 3	3082
	Regulus	E.	72 24 52	3042	70 55 31	3035	69 26 2	3030	67 56 26	3023
	Jupiter	E.	74 41 48	3024	73 12 5	3019	71 42 16	3013	70 12 19	3007
8	Sun	W.	69 8 5	3366	70 31 0	3357	71 54 6	3346	73 17 24	3335
	Venus	W.	41 2 14	2969	42 33 5	2959	44 4 9	2947	45 35 28	2936
	Regulus	E.	60 26 16	2985	58 55 44	2976	57 25 1	2966	55 54 6	2957
	Jupiter	E.	62 40 29	2969	61 9 38	2961	59 38 36	2952	58 7 23	2942
9	Sun	W.	80 17 15	3275	81 41 56	3260	83 6 54	3247	84 32 8	3232
	Venus	W.	53 15 55	2871	54 48 51	2856	56 22 6	2842	57 55 39	2828
	Aldebaran	W.	32 49 0	3125	34 16 39	3096	35 44 54	3068	37 13 43	3041
	Regulus	E.	48 16 17	2902	46 44 1	2890	45 11 29	2877	43 38 41	2865
	Jupiter	E.	50 28 6	2890	48 55 34	2877	47 22 46	2866	45 49 43	2852
	Spica	E.	102 19 40	2903	100 47 25	2891	99 14 54	2878	97 42 7	2865
10	Sun	W.	91 42 42	3155	93 9 45	3138	94 37 8	3122	96 4 51	3104
	Venus	W.	65 48 23	2747	67 24 0	2731	68 59 59	2713	70 36 21	2695
	Aldebaran	W.	44 45 38	2922	46 17 29	2899	47 49 49	2877	49 22 37	2856
	Regulus	E.	35 50 24	2795	34 15 50	2780	32 40 56	2766	31 5 43	2750
	Jupiter	E.	38 0 17	2786	36 25 31	2772	34 50 27	2758	33 15 4	2744
	Spica	E.	89 53 46	2793	88 19 9	2778	86 44 12	2762	85 8 54	2746
11	Sun	W.	103 28 54	3014	104 58 50	2994	106 29 10	2975	107 59 54	2956
	Venus	W.	78 44 15	2603	80 23 6	2584	82 2 23	2565	83 42 6	2545
	Aldebaran	W.	57 13 31	2750	58 49 5	2729	60 25 6	2708	62 1 35	2688
	Spica	E.	77 6 59	2661	75 29 27	2644	73 51 32	2626	72 13 13	2608
	Saturn	E.	114 31 28	2680	112 54 21	2660	111 16 48	2642	109 38 50	2623

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
3	Sun	W.	20 33 24	[illegible]	21 53 7	[illegible]	23 12 59	[illegible]	24 32 59	[illegible]
	Mars	E.	61 42 0	[illegible]	60 16 47	[illegible]	58 51 38	[illegible]	57 26 32	[illegible]
	Pollux	E.	76 53 27	[illegible]	75 24 50	[illegible]	73 56 17	[illegible]	72 27 48	[illegible]
4	Sun	W.	31 14 0	[illegible]	32 34 21	[illegible]	33 54 45	[illegible]	35 15 11	[illegible]
	Mars	E.	50 21 45	[illegible]	48 56 54	[illegible]	47 32 4	[illegible]	46 7 15	[illegible]
	Pollux	E.	65 6 7	[illegible]	63 37 54	[illegible]	62 9 43	[illegible]	60 41 33	[illegible]
	Regulus	E.	101 59 6	[illegible]	100 30 32	[illegible]	99 2 0	[illegible]	97 33 29	[illegible]
5	Sun	W.	41 57 56	[illegible]	43 18 37	[illegible]	44 39 21	[illegible]	46 0 8	[illegible]
	Mars	E.	39 3 15	[illegible]	37 38 25	[illegible]	36 13 34	[illegible]	34 48 41	[illegible]
	Pollux	E.	53 20 59	[illegible]	51 52 53	[illegible]	50 24 47	[illegible]	48 56 40	[illegible]
	Regulus	E.	90 10 54	[illegible]	88 42 21	[illegible]	87 13 46	[illegible]	85 45 9	[illegible]
	Jupiter	E.	92 32 21	[illegible]	91 3 24	[illegible]	89 34 26	[illegible]	88 5 26	[illegible]
6	Sun	W.	52 45 7	[illegible]	54 6 22	[illegible]	55 27 43	[illegible]	56 49 10	[illegible]
	Venus	W.	23 7 6	[illegible]	24 35 48	[illegible]	26 4 38	[illegible]	27 33 37	[illegible]
	Mars	E.	27 43 34	[illegible]	26 18 21	[illegible]	24 53 4	[illegible]	23 27 41	[illegible]
	Pollux	E.	41 35 46	[illegible]	40 7 30	[illegible]	38 39 11	[illegible]	37 10 50	[illegible]
	Regulus	E.	78 21 17	[illegible]	76 52 19	[illegible]	75 23 16	[illegible]	73 54 7	[illegible]
	Jupiter	E.	80 39 41	[illegible]	79 10 20	[illegible]	77 40 55	[illegible]	76 11 24	[illegible]
7	Sun	W.	63 38 12	[illegible]	65 0 25	[illegible]	66 22 48	[illegible]	67 45 21	[illegible]
	Venus	W.	35 1 0	[illegible]	36 31 1	[illegible]	38 1 13	[illegible]	39 31 37	[illegible]
	Pollux	E.	29 48 31	[illegible]	28 19 58	[illegible]	26 51 24	[illegible]	25 22 50	[illegible]
	Regulus	E.	66 26 42	[illegible]	64 56 50	[illegible]	63 26 48	[illegible]	61 56 37	[illegible]
	Jupiter	E.	68 42 15	[illegible]	67 12 2	[illegible]	65 41 41	[illegible]	64 11 10	[illegible]
8	Sun	W.	74 40 55	[illegible]	76 4 39	[illegible]	77 28 37	[illegible]	78 52 49	[illegible]
	Venus	W.	47 7 1	[illegible]	48 38 50	[illegible]	50 10 55	[illegible]	51 43 16	[illegible]
	Regulus	E.	54 22 52	[illegible]	52 51 39	[illegible]	51 20 6	[illegible]	49 48 19	[illegible]
	Jupiter	E.	56 35 57	[illegible]	55 4 19	[illegible]	53 32 28	[illegible]	52 0 24	[illegible]
9	Sun	W.	85 57 39	[illegible]	87 23 27	[illegible]	88 49 34	[illegible]	90 15 59	[illegible]
	Venus	W.	59 29 31	[illegible]	61 3 43	[illegible]	62 38 15	[illegible]	64 13 8	[illegible]
	Aldebaran	W.	38 43 5	[illegible]	40 12 58	[illegible]	41 43 22	[illegible]	43 14 15	[illegible]
	Regulus	E.	42 5 37	[illegible]	40 32 16	[illegible]	38 58 37	[illegible]	37 24 40	[illegible]
	Jupiter	E.	44 16 23	[illegible]	42 42 47	[illegible]	41 8 55	[illegible]	39 34 45	[illegible]
	Spica	E.	96 9 3	[illegible]	94 35 42	[illegible]	93 2 2	[illegible]	91 28 4	[illegible]
10	Sun	W.	97 32 56	[illegible]	99 1 22	[illegible]	100 30 10	[illegible]	101 59 21	[illegible]
	Venus	W.	72 13 7	[illegible]	73 50 17	[illegible]	75 27 51	[illegible]	77 5 50	[illegible]
	Aldebaran	W.	50 55 52	[illegible]	52 29 35	[illegible]	54 3 48	[illegible]	55 38 25	[illegible]
	Regulus	E.	29 10 9	[illegible]	27 34 15	[illegible]	26 18 0	[illegible]	24 41 24	[illegible]
	Jupiter	E.	31 42 23	[illegible]	30 5 23	[illegible]	28 27 3	[illegible]	26 50 24	[illegible]
	Spica	E.	83 33 15	[illegible]	81 57 15	[illegible]	80 20 52	[illegible]	78 44 7	[illegible]
11	Sun	W.	109 31 2	[illegible]	111 2 35	[illegible]	112 34 32	[illegible]	114 6 54	[illegible]
	Venus	W.	85 22 17	[illegible]	87 2 55	[illegible]	88 44 1	[illegible]	90 25 55	[illegible]
	Aldebaran	W.	63 38 31	[illegible]	65 15 5	[illegible]	66 53 48	[illegible]	68 32 9	[illegible]
	Spica	E.	70 34 20	[illegible]	68 55 20	[illegible]	67 15 46	[illegible]	65 35 46	[illegible]
	Saturn	E.	108 0 26	[illegible]	106 21 37	[illegible]	104 42 21	[illegible]	103 2 5	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
12	SUN	W.	115 39 42	2858	117 12 55	2838	118 46 34	2818	120 20 39	2798
	Aldebaran	W.	70 10 57	2584	71 50 14	2564	73 29 58	2543	75 10 11	2524
	MARS	W.	38 3 20	2679	39 40 28	2660	41 18 2	2640	42 56 3	2620
	Pollux	W.	27 35 27	2580	29 14 49	2553	30 54 48	2528	32 35 22	2504
	Spica	E.	63 55 20	2516	62 14 29	2497	60 33 11	2478	58 51 27	2459
	SATURN	E.	101 22 31	2527	99 41 56	2508	98 0 54	2489	96 19 25	2470
	Antares	E.	109 43 56	2510	108 2 56	2490	106 21 29	2472	104 39 36	2453
13	Aldebaran	W.	83 38 11	2425	85 21 10	2406	87 4 36	2387	88 48 29	2368
	MARS	W.	51 12 53	2522	52 53 36	2502	54 34 46	2483	56 16 23	2464
	Pollux	W.	41 6 18	2393	42 50 3	2372	44 34 18	2352	46 19 2	2331
	Spica	E.	50 16 8	2366	48 31 45	2348	46 46 55	2330	45 1 39	2312
	SATURN	E.	87 45 14	2375	86 1 3	2356	84 16 25	2338	82 31 21	2320
	Antares	E.	96 3 25	2357	94 18 49	2339	92 33 47	2321	90 48 18	2302
14	MARS	W.	64 51 4	2373	66 35 18	2356	68 19 56	2339	70 4 59	2323
	Pollux	W.	55 9 53	2237	56 57 25	2219	58 45 24	2202	60 33 48	2186
	Regulus	W.	18 7 28	2235	19 55 3	2215	21 43 8	2196	23 31 41	2179
	SATURN	E.	73 39 32	2235	71 51 56	2218	70 3 56	2203	68 15 33	2188
	Antares	E.	81 54 14	2214	80 6 7	2198	78 17 36	2181	76 28 40	2166
15	MARS	W.	78 55 56	2248	80 43 12	2235	82 30 47	2223	84 18 41	2210
	Pollux	W.	69 41 45	2111	71 32 28	2098	73 23 30	2086	75 14 51	2073
	Regulus	W.	32 40 45	2101	34 31 43	2087	36 23 2	2075	38 14 40	2062
	JUPITER	W.	30 50 15	2103	32 41 9	2088	34 32 26	2075	36 24 4	2062
	SATURN	E.	59 8 20	2124	57 17 57	2113	55 27 17	2102	53 36 21	2094
	Antares	E.	67 18 16	2094	65 27 7	2081	63 35 38	2068	61 43 50	2057
16	MARS	W.	93 22 19	2162	95 11 45	2153	97 1 23	2147	98 51 11	2141
	Pollux	W.	84 35 51	2025	86 28 46	2017	88 21 53	2011	90 15 10	2005
	Regulus	W.	47 37 10	2013	49 30 24	2006	51 23 49	1998	53 17 26	1993
	JUPITER	W.	45 46 43	2010	47 40 1	2003	49 33 31	1996	51 27 12	1989
	Antares	E.	52 20 43	2009	50 27 23	2001	48 33 51	1994	46 40 8	1989
	α Aquilæ	E.	104 50 58	2689	103 14 4	2672	101 36 47	2656	99 59 8	2643
17	Pollux	W.	99 43 32	1987	101 37 26	1986	103 31 22	1986	105 25 18	1987
	Regulus	W.	62 47 29	1974	64 41 45	1972	66 36 3	1972	68 30 22	1972
	JUPITER	W.	60 57 41	1970	62 52 2	1968	64 46 26	1968	66 40 51	1968
	Antares	E.	37 9 41	1970	35 15 20	1970	33 20 58	1969	31 26 35	1970
	α Aquilæ	E.	91 47 11	2605	90 8 23	2603	88 29 32	2604	86 50 42	2607
18	Regulus	W.	78 1 24	1986	79 55 21	1990	81 49 11	1996	83 42 52	2002
	JUPITER	W.	76 12 22	1982	78 6 25	1987	80 0 20	1993	81 54 6	1999
	Spica	W.	24 3 32	2010	25 56 50	2011	27 50 7	2014	29 43 20	2018
	α Aquilæ	E.	78 38 22	2651	77 0 36	2666	75 23 10	2683	73 46 7	2703
	Fomalhaut	E.	103 3 8	2354	101 18 27	2355	99 33 47	2356	97 49 9	2359
19	Regulus	W.	93 8 25	2044	95 0 50	2055	96 52 59	2066	98 44 51	2077
	JUPITER	W.	91 20 3	2041	93 12 33	2052	95 4 46	2063	96 56 42	2074
	Spica	W.	39 7 13	2053	40 59 24	2063	42 51 20	2073	44 43 0	2084
	α Aquilæ	E.	65 48 33	2819	64 14 56	2876	62 42 6	2915	61 10 6	2958
	Fomalhaut	E.	89 7 49	2396	87 24 9	2408	85 40 45	2421	83 57 40	2434

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h.	P. L. of Diff.	XVIII^h.	P. L. of Diff.	XXI^h.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
12	Sun	W.	121 55 9	[illegible]	123 30 6	[illegible]	125 5 28	[illegible]	126 41 16	[illegible]
	Aldebaran	W.	76 50 51	[illegible]	78 32 0	[illegible]	80 13 36	[illegible]	81 55 40	[illegible]
	Mars	W.	44 34 31	[illegible]	46 13 26	[illegible]	47 52 48	[illegible]	49 32 37	[illegible]
	Pollux	W.	34 16 29	[illegible]	35 58 9	[illegible]	37 40 21	[illegible]	39 23 4	[illegible]
	Spica	E.	57 9 16	[illegible]	55 26 39	[illegible]	53 43 35	[illegible]	52 0 5	[illegible]
	Saturn	E.	94 37 29	[illegible]	92 55 6	[illegible]	91 12 16	[illegible]	89 28 59	[illegible]
	Antares	E.	102 57 16	[illegible]	101 14 29	[illegible]	99 31 15	[illegible]	97 47 34	[illegible]
13	Aldebaran	W.	90 32 49	[illegible]	92 17 35	[illegible]	94 2 46	[illegible]	95 48 23	[illegible]
	Mars	W.	57 58 27	[illegible]	59 40 57	[illegible]	61 23 54	[illegible]	63 7 16	[illegible]
	Pollux	W.	48 4 16	[illegible]	49 49 58	[illegible]	51 36 9	[illegible]	53 22 47	[illegible]
	Spica	E.	43 15 57	[illegible]	41 29 50	[illegible]	39 43 17	[illegible]	37 56 20	[illegible]
	Saturn	E.	80 45 50	[illegible]	78 59 53	[illegible]	77 13 31	[illegible]	75 26 44	[illegible]
	Antares	E.	89 2 22	[illegible]	87 15 59	[illegible]	85 29 10	[illegible]	83 41 55	[illegible]
14	Mars	W.	71 50 25	[illegible]	73 36 15	[illegible]	75 22 27	[illegible]	77 9 1	[illegible]
	Pollux	W.	62 22 36	[illegible]	64 11 49	[illegible]	66 1 25	[illegible]	67 51 24	[illegible]
	Regulus	W.	25 20 40	[illegible]	27 10 5	[illegible]	28 59 55	[illegible]	30 50 9	[illegible]
	Saturn	E.	66 26 47	[illegible]	64 37 40	[illegible]	62 48 13	[illegible]	60 58 26	[illegible]
	Antares	E.	74 39 21	[illegible]	72 49 38	[illegible]	70 59 32	[illegible]	69 9 5	[illegible]
15	Mars	W.	86 6 53	[illegible]	87 55 22	[illegible]	89 44 6	[illegible]	91 33 5	[illegible]
	Pollux	W.	77 6 31	[illegible]	78 58 28	[illegible]	80 50 41	[illegible]	82 43 9	[illegible]
	Regulus	W.	40 6 37	[illegible]	41 58 52	[illegible]	43 51 23	[illegible]	45 44 9	[illegible]
	Jupiter	W.	38 16 1	[illegible]	40 8 17	[illegible]	42 0 50	[illegible]	43 53 19	[illegible]
	Saturn	E.	51 45 12	[illegible]	49 53 50	[illegible]	48 2 17	[illegible]	46 10 35	[illegible]
	Antares	E.	59 51 45	[illegible]	57 59 23	[illegible]	56 6 44	[illegible]	54 13 50	[illegible]
16	Mars	W.	100 41 8	[illegible]	102 31 13	[illegible]	104 21 25	[illegible]	106 11 43	[illegible]
	Pollux	W.	92 8 37	[illegible]	94 2 12	[illegible]	95 55 53	[illegible]	97 49 40	[illegible]
	Regulus	W.	55 11 12	[illegible]	57 5 7	[illegible]	58 59 9	[illegible]	60 53 17	[illegible]
	Jupiter	W.	53 21 3	[illegible]	55 15 3	[illegible]	57 9 10	[illegible]	59 3 23	[illegible]
	Antares	E.	44 46 17	[illegible]	42 52 18	[illegible]	40 58 11	[illegible]	39 3 58	[illegible]
	α Aquilæ	E.	98 21 11	[illegible]	96 42 58	[illegible]	95 4 31	[illegible]	93 25 54	[illegible]
17	Pollux	W.	107 19 13	[illegible]	109 13 6	[illegible]	111 6 55	[illegible]	113 0 39	[illegible]
	Regulus	W.	70 24 40	[illegible]	72 18 56	[illegible]	74 13 10	[illegible]	76 7 20	[illegible]
	Jupiter	W.	68 35 15	[illegible]	70 29 38	[illegible]	72 23 57	[illegible]	74 18 12	[illegible]
	Antares	E.	29 32 13	[illegible]	27 37 52	[illegible]	25 43 35	[illegible]	23 49 22	[illegible]
	α Aquilæ	E.	85 11 56	[illegible]	83 33 16	[illegible]	81 54 45	[illegible]	80 16 26	[illegible]
18	Regulus	W.	85 36 23	[illegible]	87 29 43	[illegible]	89 22 50	[illegible]	91 15 45	[illegible]
	Jupiter	W.	83 47 42	[illegible]	85 41 7	[illegible]	87 34 19	[illegible]	89 27 18	[illegible]
	Spica	W.	31 36 36	[illegible]	33 29 24	[illegible]	35 22 12	[illegible]	37 14 49	[illegible]
	α Aquilæ	E.	72 9 31	[illegible]	70 33 24	[illegible]	68 57 50	[illegible]	67 22 52	[illegible]
	Fomalhaut	E.	96 4 35	[illegible]	94 30 9	[illegible]	92 55 51	[illegible]	90 51 44	[illegible]
19	Regulus	W.	100 36 26	[illegible]	102 27 43	[illegible]	104 18 38	[illegible]	106 9 14	[illegible]
	Jupiter	W.	98 48 21	[illegible]	100 39 41	[illegible]	102 30 41	[illegible]	104 21 21	[illegible]
	Spica	W.	46 34 24	[illegible]	48 25 30	[illegible]	50 16 18	[illegible]	52 6 46	[illegible]
	α Aquilæ	E.	59 37 0	[illegible]	58 8 52	[illegible]	56 39 47	[illegible]	55 11 48	[illegible]
	Fomalhaut	E.	82 14 54	[illegible]	80 32 30	[illegible]	78 50 29	[illegible]	77 8 53	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
20	Jupiter	W.	106 11 40	2141	108 1 37	2155	109 51 13	2170	111 40 26	2184
	Spica	W.	53 56 55	2147	55 46 43	2161	57 36 9	2175	59 25 14	2190
	α Aquilæ	E.	53 45 1	3233	52 19 31	3303	50 55 23	3379	49 32 43	3463
	Fomalhaut	E.	75 27 44	2523	73 47 3	2544	72 6 51	2567	70 27 11	2592
	α Pegasi	E.	96 40 59	2315	94 55 22	2328	93 10 4	2342	91 25 6	2357
21	Spica	W.	68 24 58	2268	70 11 44	2285	71 58 6	2301	73 44 4	2318
	Saturn	W.	32 1 53	2358	33 46 28	2364	35 30 54	2372	37 15 9	2382
	Antares	W.	22 33 14	2263	24 20 8	2279	26 6 38	2296	27 52 43	2313
	Fomalhaut	E.	62 17 45	2735	60 41 51	2767	59 6 40	2802	57 32 15	2840
	α Pegasi	E.	82 45 55	2441	81 3 18	2458	79 21 6	2477	77 39 21	2496
	Sun	E.	120 39 21	2593	119 0 16	2610	117 21 35	2627	115 43 17	2644
22	Spica	W.	82 27 45	2403	84 11 16	2420	85 54 22	2437	87 37 4	2455
	Saturn	W.	45 52 34	2441	47 35 10	2455	49 17 26	2469	50 59 23	2483
	Antares	W.	36 37 1	2398	38 20 39	2415	40 3 52	2432	41 46 41	2450
	Fomalhaut	E.	49 53 6	3062	48 24 10	3116	46 56 20	3173	45 29 39	3236
	α Pegasi	E.	69 17 30	2600	67 38 35	2622	66 0 10	2645	64 22 16	2668
	Sun	E.	107 37 45	2735	106 1 51	2753	104 26 21	2771	102 51 15	2788
23	Spica	W.	96 4 34	2538	97 44 54	2554	99 24 52	2571	101 4 27	2587
	Saturn	W.	59 24 4	2556	61 3 59	2572	62 43 33	2586	64 22 47	2601
	Antares	W.	50 14 45	2533	51 55 12	2550	53 35 16	2566	55 14 58	2582
	α Pegasi	E.	56 20 46	2793	54 46 9	2821	53 12 8	2849	51 38 44	2878
	Sun	E.	95 1 37	2879	93 28 51	2897	91 56 28	2914	90 24 27	2931
24	Spica	W.	109 16 58	2664	110 54 26	2680	112 31 33	2694	114 8 21	2708
	Saturn	W.	72 33 55	2674	74 11 10	2687	75 48 7	2701	77 24 45	2716
	Antares	W.	63 28 5	2659	65 5 40	2673	66 42 56	2688	68 19 52	2703
	α Pegasi	E.	44 1 36	3047	42 32 21	3086	41 3 54	3128	39 36 18	3173
	Sun	E.	82 49 42	3015	81 19 48	3030	79 50 13	3047	78 20 58	3062
25	Saturn	W.	85 23 27	2781	86 58 20	2792	88 32 58	2805	90 7 20	2816
	Antares	W.	76 19 53	2769	77 55 1	2782	79 29 53	2794	81 4 29	2806
	Sun	E.	70 59 22	3136	69 31 56	3150	68 4 47	3163	66 37 54	3177
26	Saturn	W.	97 55 26	2872	99 28 21	2883	101 1 2	2893	102 33 30	2902
	Antares	W.	88 53 43	2861	90 26 52	2872	91 59 47	2881	93 32 30	2891
	α Aquilæ	W.	44 11 11	4408	45 16 25	4335	46 22 45	4270	47 30 5	4212
	Sun	E.	59 27 22	3240	58 2 0	3251	56 36 51	3262	55 11 55	3274
27	Antares	W.	101 13 8	2935	102 44 43	2942	104 16 9	2950	105 47 25	2958
	α Aquilæ	W.	53 18 58	3995	54 30 43	3961	55 43 1	3932	56 55 48	3907
	Sun	E.	48 10 30	3326	46 46 49	3337	45 23 20	3346	44 0 2	3357
28	α Aquilæ	W.	63 5 38	3807	64 20 33	3792	65 35 44	3778	66 51 9	3767
	Fomalhaut	W.	37 53 34	4062	39 4 13	4001	40 15 52	3945	41 28 26	3896
	Sun	E.	37 6 19	3403	35 44 6	3414	34 22 5	3423	33 0 14	3433
29	α Aquilæ	W.	73 10 58	3722	74 27 22	3716	75 43 52	3710	77 0 28	3707
	Fomalhaut	W.	47 42 16	3715	48 58 47	3689	50 15 46	3664	51 33 11	3643
	Sun	E.	26 13 58	3490	24 53 23	3504	23 33 3	3520	22 13 1	3538

GREENWICH MEAN TIME

LUNAR DISTANCES

Day of the Month	Name and Direction of Object		Midnight. ° ′ ″	P.L. of Diff.	XVh. ° ′ ″	P.L. of Diff.	XVIIIh. ° ′ ″	P.L. of Diff.	XXIh. ° ′ ″	P.L. of Diff.
20	Jupiter	W.	113 29 17	[illegible]	115 17 44	[illegible]	117 5 47	[illegible]	118 53 26	[illegible]
	Spica	W.	61 13 57	[illegible]	63 2 17	[illegible]	64 50 14	[illegible]	66 37 48	[illegible]
	α Aquilæ	E.	48 11 37	[illegible]	46 52 12	[illegible]	45 34 34	[illegible]	44 18 51	[illegible]
	Fomalhaut	E.	68 48 5	[illegible]	67 9 33	[illegible]	65 31 38	[illegible]	63 54 21	[illegible]
	α Pegasi	E.	89 40 30	[illegible]	87 56 16	[illegible]	86 12 25	[illegible]	84 28 58	[illegible]
21	Spica	W.	75 29 37	[illegible]	77 14 46	[illegible]	78 59 30	[illegible]	80 43 50	[illegible]
	Saturn	W.	38 59 10	[illegible]	40 42 57	[illegible]	42 26 27	[illegible]	44 9 40	[illegible]
	Antares	W.	29 38 24	[illegible]	31 23 40	[illegible]	33 8 32	[illegible]	34 52 59	[illegible]
	Fomalhaut	E.	55 58 39	[illegible]	54 25 53	[illegible]	52 54 1	[illegible]	51 23 4	[illegible]
	α Pegasi	E.	75 58 2	[illegible]	74 17 11	[illegible]	72 36 49	[illegible]	70 56 55	[illegible]
	Sun	E.	114 5 22	[illegible]	112 27 51	[illegible]	110 50 45	[illegible]	109 14 3	[illegible]
22	Spica	W.	89 19 21	[illegible]	91 1 14	[illegible]	92 42 44	[illegible]	94 23 51	[illegible]
	Saturn	W.	52 41 0	[illegible]	54 22 17	[illegible]	56 3 13	[illegible]	57 43 49	[illegible]
	Antares	W.	43 29 5	[illegible]	45 11 5	[illegible]	46 52 42	[illegible]	48 33 55	[illegible]
	Fomalhaut	E.	44 4 12	[illegible]	42 40 4	[illegible]	41 17 20	[illegible]	39 56 6	[illegible]
	α Pegasi	E.	62 44 53	[illegible]	61 8 2	[illegible]	59 31 43	[illegible]	57 55 58	[illegible]
	Sun	E.	101 16 32	[illegible]	99 42 13	[illegible]	98 8 18	[illegible]	96 34 46	[illegible]
23	Spica	W.	102 43 40	[illegible]	104 22 31	[illegible]	106 1 1	[illegible]	107 39 10	[illegible]
	Saturn	W.	66 1 40	[illegible]	67 40 13	[illegible]	69 18 27	[illegible]	70 56 21	[illegible]
	Antares	W.	56 54 18	[illegible]	58 33 16	[illegible]	60 11 53	[illegible]	61 50 9	[illegible]
	α Pegasi	E.	50 5 57	[illegible]	48 33 49	[illegible]	47 2 22	[illegible]	45 31 37	[illegible]
	Sun	E.	88 52 47	[illegible]	87 21 29	[illegible]	85 50 33	[illegible]	84 19 57	[illegible]
24	Spica	W.	115 44 59	[illegible]	117 21 0	[illegible]	118 56 52	[illegible]	120 32 26	[illegible]
	Saturn	W.	79 1 4	[illegible]	80 39 6	[illegible]	82 12 50	[illegible]	83 48 17	[illegible]
	Antares	W.	69 56 28	[illegible]	71 32 46	[illegible]	73 8 46	[illegible]	74 44 28	[illegible]
	α Pegasi	E.	38 9 16	[illegible]	36 41 52	[illegible]	35 19 12	[illegible]	33 55 39	[illegible]
	Sun	E.	76 52 2	[illegible]	75 23 25	[illegible]	73 55 6	[illegible]	72 27 5	[illegible]
25	Saturn	W.	91 41 27	[illegible]	93 15 18	[illegible]	94 48 55	[illegible]	96 22 17	[illegible]
	Antares	W.	82 38 47	[illegible]	84 12 54	[illegible]	85 46 45	[illegible]	87 20 21	[illegible]
	Sun	E.	65 21 17	[illegible]	63 44 58	[illegible]	62 18 50	[illegible]	60 52 59	[illegible]
26	Saturn	W.	104 5 46	[illegible]	105 37 40	[illegible]	107 9 41	[illegible]	108 41 21	[illegible]
	Antares	W.	95 5 0	[illegible]	96 37 19	[illegible]	98 9 26	[illegible]	99 41 22	[illegible]
	α Aquilæ	W.	48 38 20	[illegible]	49 47 24	[illegible]	50 57 15	[illegible]	52 7 48	[illegible]
	Sun	E.	53 47 13	[illegible]	52 22 44	[illegible]	50 58 27	[illegible]	49 34 23	[illegible]
27	Antares	W.	107 13 31	[illegible]	108 43 23	[illegible]	110 20 18	[illegible]	111 50 59	[illegible]
	α Aquilæ	W.	58 9 1	[illegible]	59 22 13	[illegible]	60 36 39	[illegible]	61 50 59	[illegible]
	Sun	E.	42 36 58	[illegible]	41 14 1	[illegible]	39 51 16	[illegible]	38 28 42	[illegible]
28	α Aquilæ	W.	68 6 46	[illegible]	69 22 35	[illegible]	70 38 34	[illegible]	71 54 42	[illegible]
	Fomalhaut	W.	42 41 58	[illegible]	43 55 57	[illegible]	45 10 49	[illegible]	46 26 16	[illegible]
	Sun	E.	31 38 8	[illegible]	30 17 7	[illegible]	28 55 51	[illegible]	27 34 48	[illegible]
29	α Aquilæ	W.	78 17 8	[illegible]	79 33 5	[illegible]	80 50 41	[illegible]	82 7 38	[illegible]
	Fomalhaut	W.	52 53 57	[illegible]	54 9 8	[illegible]	55 27 37	[illegible]	56 46 23	[illegible]
	Sun	E.	20 53 12	[illegible]	19 33 5	[illegible]	18 15 6	[illegible]	16 56 44	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Sat.	1	2 35 37.05	9.557	N.15 14 30.6	+45.05	15 54.11	66.10	3 4.06	0.299
SUN.	2	2 39 26.69	9.580	15 32 24.3	44.42	15 53.88	66.18	3 10.95	0.276
Mon.	3	2 43 16.88	9.603	15 50 2.6	43.77	15 53.65	66.26	3 17.30	0.253
Tues.	4	2 47 7.62	9.626	16 7 25.1	+43.11	15 53.42	66.35	3 23.10	0.230
Wed.	5	2 50 58.91	9.649	16 24 31.5	42.43	15 53.20	66.43	3 28.35	0.207
Thur.	6	2 54 50.75	9.672	16 41 21.5	41.74	15 52.98	66.51	3 33.06	0.184
Frid.	7	2 58 43.15	9.695	16 57 54.8	+41.03	15 52.76	66.59	3 37.21	0.161
Sat.	8	3 2 36.09	9.718	17 14 11.1	40.31	15 52.55	66.67	3 40.80	0.138
SUN.	9	3 6 29.60	9.741	17 30 10.1	39.59	15 52.34	66.75	3 43.85	0.115
Mon.	10	3 10 23.66	9.764	17 45 51.5	+38.85	15 52.14	66.84	3 46.34	0.092
Tues.	11	3 14 18.28	9.787	18 1 15.0	38.10	15 51.93	66.92	3 48.27	0.069
Wed.	12	3 18 13.45	9.810	18 16 20.4	37.34	15 51.73	67.00	3 49.64	0.046
Thur.	13	3 22 9.20	9.834	18 31 7.3	+36.57	15 51.53	67.08	3 50.46	0.022
Frid.	14	3 26 5.49	9.857	18 45 35.6	35.79	15 51.34	67.16	3 50.72	0.001
Sat.	15	3 30 2.36	9.881	18 59 44.9	34.99	15 51.14	67.24	3 50.41	0.024
SUN.	16	3 33 59.78	9.904	19 13 35.0	+34.18	15 50.95	67.32	3 49.54	0.047
Mon.	17	3 37 57.78	9.928	19 27 5.7	33.37	15 50.76	67.40	3 48.11	0.071
Tues.	18	3 41 56.34	9.951	19 40 16.7	32.54	15 50.57	67.48	3 46.12	0.095
Wed.	19	3 45 55.45	9.975	19 53 7.7	+31.70	15 50.38	67.56	3 43.56	0.118
Thur.	20	3 49 55.13	9.998	20 5 38.4	30.85	15 50.20	67.64	3 40.45	0.141
Frid.	21	3 53 55.37	10.021	20 17 48.7	30.00	15 50.01	67.72	3 36.78	0.164
Sat.	22	3 57 56.16	10.044	20 29 38.2	+29.13	15 49.83	67.79	3 32.56	0.187
SUN.	23	4 1 57.49	10.067	20 41 6.8	28.25	15 49.66	67.86	3 27.80	0.210
Mon.	24	4 5 59.35	10.089	20 52 14.1	27.36	15 49.49	67.93	3 22.50	0.232
Tues.	25	4 10 1.74	10.110	21 2 59.9	+26.46	15 49.32	68.00	3 16.69	0.253
Wed.	26	4 14 4.65	10.131	21 13 24.0	25.55	15 49.15	68.07	3 10.36	0.274
Thur.	27	4 18 8.05	10.152	21 23 26.2	24.63	15 48.99	68.14	3 3.53	0.294
Frid.	28	4 22 11.94	10.172	21 33 6.2	+23.70	15 48.84	68.20	2 56.22	0.314
Sat.	29	4 26 16.29	10.191	21 42 23.8	22.76	15 48.69	68.26	2 48.45	0.333
SUN.	30	4 30 21.10	10.209	21 51 18.8	21.82	15 48.54	68.32	2 40.22	0.351
Mon.	31	4 34 26.34	10.227	21 59 51.0	20.87	15 48.40	68.38	2 31.56	0.369
Tues.	32	4 38 31.98	10.243	N.22 8 0.2	+19.90	15 48.27	68.43	2 22.50	0.386

Note.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Sat.	1	2 35 37.54	9.558	N. 15 14 32.9	+45.06	3 4.07	0.299	2 38 41.61
SUN.	2	2 39 27.20	9.580	15 32 26.7	44.42	3 10.97	0.276	2 42 38.17
Mon.	3	2 43 17.41	9.603	15 50 5.0	43.77	3 17.31	0.253	2 46 34.72
Tues.	4	2 47 8.16	9.626	16 7 27.5	+43.11	3 23.12	0.230	2 50 31.28
Wed.	5	2 50 59.47	9.649	16 24 34.0	42.43	3 28.37	0.207	2 54 27.84
Thur.	6	2 54 51.32	9.672	16 41 24.0	41.74	3 33.07	0.184	2 58 24.39
Frid.	7	2 58 43.73	9.695	16 57 57.3	+41.03	3 37.22	0.161	3 2 20.95
Sat.	8	3 2 36.69	9.718	17 14 13.6	40.31	3 40.81	0.138	3 6 17.50
SUN.	9	3 6 30.20	9.741	17 30 12.6	39.59	3 43.86	0.115	3 10 14.06
Mon.	10	3 10 24.27	9.764	17 45 54.0	+38.85	3 46.34	0.092	3 14 10.62
Tues.	11	3 14 18.90	9.788	18 1 17.4	38.10	3 48.28	0.069	3 18 7.17
Wed.	12	3 18 14.08	9.811	18 16 22.8	37.34	3 49.65	0.046	3 22 3.73
Thur.	13	3 22 9.82	9.834	18 31 9.7	+36.57	3 50.46	0.022	3 26 0.28
Frid.	14	3 26 6.12	9.857	18 45 37.9	35.79	3 50.72	0.002	3 29 56.84
Sat.	15	3 30 2.99	9.881	18 59 47.2	34.99	3 50.41	0.025	3 33 53.40
SUN.	16	3 34 0.42	9.905	19 13 37.3	+34.18	3 49.54	0.048	3 37 49.96
Mon.	17	3 37 58.40	9.928	19 27 7.9	33.36	3 48.11	0.071	3 41 46.51
Tues.	18	3 41 56.96	9.952	19 40 18.8	32.53	3 46.11	0.095	3 45 43.07
Wed.	19	3 45 56.07	9.975	19 53 9.7	[illegible]	3 43.55	0.118	3 49 39.63
Thur.	20	3 49 55.74	9.998	20 5 4[illegible]	[illegible]	3 4[illegible].44	0.141	3 53 36.18
Frid.	21	3 53 55.97	10.021	20 17 50.5	[illegible]	3 36.77	0.164	3 57 32.74
Sat.	22	3 57 56.75	10.044	20 [illegible]	+[illegible]	3 32.55	0.187	4 1 29.30
SUN.	23	4 1 5[illegible]	[illegible]	20 41 [illegible]	[illegible]	3 27.79	0.210	4 5 25.86
Mon.	24	4 5 59.[illegible]	[illegible]	20 52 15.6	[illegible]	3 22.49	0.232	4 9 22.41
Tues.	25	4 10 2.30	10.110	21 3 1.4	+[illegible]	3 16.67	0.255	4 13 18.97
Wed.	26	4 14 5.[illegible]	[illegible]	21 13 25.4	[illegible]	3 [illegible]	0.27[illegible]	4 17 15.53
Thur.	27	4 18 [illegible]	[illegible]	21 [illegible]	[illegible]	3 3.52	0.295	4 21 12.09
Frid.	28	4 22 [illegible]	[illegible]	[illegible]	+[illegible]	2 56.21	0.315	4 25 8.64
Sat.	29	4 26 [illegible]	[illegible]	21 42 [illegible]	[illegible]	2 48.43	0.334	4 29 5.20
SUN.	30	4 [illegible]	[illegible]	21 51 [illegible]	[illegible]	2 4[illegible]	0.352	4 33 1.76
Mon.	31	4 34 [illegible]	[illegible]	21 [illegible]	[illegible]	2 31.55	0.[illegible]	4 36 58.32
Tues.	32	4 38 [illegible]	[illegible]	N. 22 [illegible]	[illegible]	2 22.49	0.386	4 40 54.88

Note [illegible] apparent [illegible] de [illegible] are [illegible]

Diff. for 1 Hour, + 9^s.8565 (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	121	41 20 45.9	20 17.6	145.48	+ 0.35	0.0035752	+44.8	21 17 48.48
2	122	42 18 56.5	18 28.0	145.41	0.34	0.0036818	44.1	21 13 52.57
3	123	43 17 5.3	16 36.7	145.33	0.30	0.0037867	43.3	21 9 56.66
4	124	44 15 12.4	14 43.6	145.26	+ 0.23	0.0038897	+42.6	21 6 0.75
5	125	45 13 17.6	12 48.7	145.18	0.14	0.0039912	41.9	21 2 4.84
6	126	46 11 21.0	10 51.9	145.10	+ 0.03	0.0040911	41.2	20 58 8.93
7	127	47 9 22.5	8 53.3	145.03	− 0.10	0.0041893	+40.6	20 54 13.02
8	128	48 7 22.2	6 52.8	144.95	0.23	0.0042861	40.0	20 50 17.11
9	129	49 5 20.0	4 50.4	144.87	0.36	0.0043814	39.5	20 46 21.20
10	130	50 3 15.9	2 46.2	144.79	− 0.48	0.0044756	+39.0	20 42 25.29
11	131	51 1 10.0	0 40.2	144.72	0.60	0.0045686	38.5	20 38 29.38
12	132	51 59 2.4	58 32.4	144.65	0.69	0.0046604	38.1	20 34 33.47
13	133	52 56 53.0	56 22.8	144.58	− 0.77	0.0047514	+37.7	20 30 37.56
14	134	53 54 42.0	54 11.7	144.51	0.81	0.0048413	37.3	20 26 41.64
15	135	54 52 29.5	51 59.0	144.45	0.81	0.0049304	36.9	20 22 45.73
16	136	55 50 15.4	49 44.8	144.39	− 0.79	0.0050186	+36.5	20 18 49.82
17	137	56 48 0.0	47 29.2	144.33	0.74	0.0051059	36.2	20 14 53.91
18	138	57 45 43.3	45 12.2	144.28	0.67	0.0051924	35.8	20 10 58.00
19	139	58 43 25.3	42 54.1	144.23	− 0.56	0.0052778	+35.4	20 7 2.09
20	140	59 41 6.1	40 34.8	144.18	0.45	0.0053622	34.9	20 3 6.18
21	141	60 38 45.8	38 14.3	144.13	0.32	0.0054454	34.4	19 59 10.26
22	142	61 36 24.6	35 53.0	144.09	− 0.19	0.0055274	+33.8	19 55 14.35
23	143	62 34 2.4	33 30.6	144.05	− 0.06	0.0056079	33.2	19 51 18.44
24	144	63 31 39.3	31 7.3	144.02	+ 0.06	0.0056866	32.5	19 47 22.53
25	145	64 29 15.2	28 43.1	143.98	+ 0.16	0.0057638	+31.8	19 43 26.62
26	146	65 26 50.2	26 17.9	143.94	0.25	0.0058391	31.0	19 39 30.71
27	147	66 24 24.2	23 51.7	143.90	0.30	0.0059124	30.1	19 35 34.80
28	148	67 21 57.4	21 24.7	143.86	+ 0.33	0.0059835	+29.2	19 31 38.88
29	149	68 19 29.7	18 56.8	143.82	0.34	0.0060524	28.2	19 27 42.97
30	150	69 17 1.0	16 28.0	143.78	0.31	0.0061190	27.3	19 23 47.06
31	151	70 14 31.3	13 58.1	143.74	0.25	0.0061833	26.3	19 19 51.15
32	152	71 12 0.6	11 27.2	143.70	+ 0.16	0.0062451	+25.3	19 15 55.24

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0d.0.

Diff. for 1 Hour, $-9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER. Noon.	SEMIDIAMETER. Midnight.	HORIZONTAL PARALLAX. Noon.	HORIZONTAL PARALLAX. Diff. for 1 Hour.	HORIZONTAL PARALLAX. Midnight.	HORIZONTAL PARALLAX. Diff. for 1 Hour.	UPPER TRANSIT. Meridian of Greenwich.	UPPER TRANSIT. Diff. for 1 Hour.	AGE. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 43.7	14 43.4	53 56.6	−0.18	53 55.2	−0.07	6		29.3
2	14 43.3	14 43.6	53 55.0	+0.04	53 56.2	+0.16	0 19.2	1.95	0.6
3	14 44.3	14 45.5	53 58.8	0.28	54 2.9	0.40	1 7.2	2.05	1.6
4	14 47.0	14 48.9	54 8.5	+0.53	54 15.6	+0.66	1 57.3	2.12	2.6
5	14 51.3	14 54.2	54 24.4	0.81	54 35.0	0.96	2 48.6	2.15	3.6
6	14 57.6	15 1.4	54 47.4	1.11	55 1.6	1.26	3 40.1	2.14	4.6
7	15 5.8	15 10.8	55 17.7	+1.43	55 35.8	+1.59	4 30.8	2.09	5.6
8	15 16.2	15 22.1	55 55.8	1.74	56 17.5	1.88	5 20.1	2.02	6.6
9	15 28.5	15 35.3	56 41.0	2.02	57 6.0	2.14	6 8.0	1.97	7.6
10	15 42.5	15 49.9	57 32.3	+2.23	57 59.6	+2.30	6 55.0	1.95	8.6
11	15 57.5	16 5.1	58 27.4	2.32	58 55.3	2.30	7 41.9	1.97	9.6
12	16 12.5	16 19.6	59 22.6	2.23	59 48.8	2.11	8 30.0	2.05	10.6
13	16 26.3	16 32.2	60 13.2	+1.93	60 35.0	+1.68	9 20.7	2.18	11.6
14	16 37.3	16 41.3	60 53.6	1.39	61 8.3	1.05	10 15.2	2.37	12.6
15	16 44.1	16 45.6	61 18.7	+0.66	61 24.2	+0.25	11 14.4	2.57	13.6
16	16 45.7	16 44.5	61 24.7	−0.17	61 20.1	−0.59	12 18.0	2.72	14.6
17	16 41.9	16 38.0	61 10.6	0.99	60 56.4	1.35	13 24.1	2.76	15.6
18	16 33.1	16 27.1	60 38.1	1.67	60 16.3	1.93	14 29.4	2.66	16.6
19	16 20.4	16 13.1	59 51.7	−2.14	59 24.9	−2.29	15 30.8	2.45	17.6
20	16 5.5	15 57.6	58 56.7	2.38	58 27.8	2.41	16 26.8	2.22	18.6
21	15 49.7	15 41.9	57 58.8	2.40	57 30.3	2.34	17 17.4	2.01	19.6
22	15 34.4	15 27.3	57 2.7	−2.25	56 36.4	−2.12	18 3.5	1.85	20.6
23	15 20.6	15 14.3	56 11.8	1.98	55 49.0	1.81	18 46.4	1.74	21.6
24	15 8.7	15 3.6	55 28.3	1.64	55 9.7	1.46	19 27.6	1.70	22.6
25	14 59.2	14 55.3	54 53.2	−1.28	54 39.1	−1.09	20 8.2	1.70	23.6
26	14 52.0	14 49.4	54 27.1	0.91	54 17.2	0.74	20 49.3	1.74	24.6
27	14 47.2	14 45.6	54 9.4	0.57	54 3.5	0.42	21 31.9	1.82	25.6
28	14 44.5	14 43.9	53 59.4	0.27	53 57.1	−0.12	22 16.7	1.98	26.6
29	14 43.7	14 44.0	53 56.5	+0.01	53 57.4	+0.13	23 4.0	2.08	27.6
30	14 44.6	14 45.6	53 59.7	0.25	54 3.4	0.36	23 53.6	2.11	28.6
31	14 47.0	14 48.7	54 8.4	0.47	54 14.7	0.58	6		29.6
32	14 52.7	14 53.1	54 22.2	+0.68	54 30.9	+0.78	0 44.9	2.16	1.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 1.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	2 13 9.78	1.9587	N.18 40 29.5	10.017
1	2 15 7.41	1.9624	18 50 28.2	9.938
2	2 17 5.26	1.9661	19 0 22.1	9.859
3	2 19 3.34	1.9698	19 10 11.3	9.780
4	2 21 1.64	1.9736	19 19 55.7	9.699
5	2 23 0.17	1.9773	19 29 35.2	9.618
6	2 24 58.92	1.9811	19 39 9.9	9.537
7	2 26 57.90	1.9849	19 48 39.6	9.453
8	2 28 57.11	1.9887	19 58 4.3	9.369
9	2 30 56.55	1.9926	20 7 23.9	9.285
10	2 32 56.22	1.9964	20 16 38.5	9.200
11	2 34 56.12	2.0002	20 25 47.9	9.114
12	2 36 56.25	2.0041	20 34 52.1	9.027
13	2 38 56.61	2.0080	20 43 51.1	8.939
14	2 40 57.21	2.0119	20 52 44.8	8.850
15	2 42 58.04	2.0157	21 1 33.1	8.760
16	2 44 59.10	2.0196	21 10 16.0	8.670
17	2 47 0.39	2.0235	21 18 53.5	8.580
18	2 49 1.92	2.0274	21 27 25.6	8.488
19	2 51 3.68	2.0313	21 35 52.1	8.395
20	2 53 5.68	2.0352	21 44 13.0	8.302
21	2 55 7.91	2.0392	21 52 28.3	8.207
22	2 57 10.38	2.0431	22 0 37.9	8.112
23	2 59 13.08	2.0470	N.22 8 41.8	8.017

SUNDAY 2.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	3 1 16.02	2.0509	N.22 16 40.0	7.921
1	3 3 19.19	2.0548	22 24 32.3	7.823
2	3 5 22.59	2.0587	22 32 18.7	7.725
3	3 7 26.23	2.0626	22 39 59.3	7.627
4	3 9 30.10	2.0664	22 47 33.9	7.527
5	3 11 34.20	2.0702	22 55 2.5	7.426
6	3 13 38.53	2.0741	23 2 25.0	7.324
7	3 15 43.09	2.0779	23 9 41.4	7.222
8	3 17 47.88	2.0817	23 16 51.7	7.120
9	3 19 52.90	2.0855	23 23 55.8	7.016
10	3 21 58.14	2.0893	23 30 53.6	6.912
11	3 24 3.61	2.0931	23 37 45.2	6.807
12	3 26 9.31	2.0968	23 44 30.5	6.702
13	3 28 15.23	2.1005	23 51 9.4	6.595
14	3 30 21.37	2.1042	23 57 41.9	6.488
15	3 32 27.74	2.1079	24 4 8.0	6.381
16	3 34 34.32	2.1115	24 10 27.6	6.272
17	3 36 41.12	2.1152	24 16 40.6	6.162
18	3 38 48.14	2.1188	24 22 47.0	6.052
19	3 40 55.37	2.1223	24 28 46.8	5.942
20	3 43 2.82	2.1259	24 34 40.0	5.831
21	3 45 10.48	2.1294	24 40 26.5	5.718
22	3 47 18.35	2.1328	24 46 6.2	5.605
23	3 49 26.42	2.1363	24 51 39.1	5.492
24	3 51 34.70	2.1398	N.24 57 5.3	5.379

MONDAY 3.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	3 51 34.70	2.1398	N.24 57 5.3	5.379
1	3 53 43.19	2.1431	25 2 24.6	5.264
2	3 55 51.87	2.1463	25 7 37.0	5.148
3	3 58 0.75	2.1496	25 12 42.4	5.032
4	4 0 9.82	2.1528	25 17 40.8	4.915
5	4 2 19.09	2.1561	25 22 32.2	4.798
6	4 4 28.55	2.1593	25 27 16.6	4.681
7	4 6 38.20	2.1623	25 31 53.9	4.562
8	4 8 48.03	2.1653	25 36 24.0	4.443
9	4 10 58.04	2.1683	25 40 47.0	4.323
10	4 13 8.23	2.1713	25 45 2.8	4.203
11	4 15 18.60	2.1743	25 49 11.4	4.082
12	4 17 29.15	2.1772	25 53 12.7	3.961
13	4 19 39.87	2.1800	25 57 6.7	3.839
14	4 21 50.75	2.1828	26 0 53.4	3.717
15	4 24 1.80	2.1855	26 4 32.8	3.595
16	4 26 13.01	2.1881	26 8 4.8	3.471
17	4 28 24.37	2.1907	26 11 29.3	3.347
18	4 30 35.89	2.1932	26 14 46.4	3.223
19	4 32 47.56	2.1957	26 17 56.0	3.098
20	4 34 59.38	2.1982	26 20 58.1	2.973
21	4 37 11.34	2.2005	26 23 52.7	2.847
22	4 39 23.44	2.2028	26 26 39.7	2.720
23	4 41 35.67	2.2050	N.26 29 19.1	2.594

TUESDAY 4.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	4 43 48.04	2.2072	N.26 31 51.0	2.467
1	4 46 0.54	2.2093	26 34 15.2	2.339
2	4 48 13.16	2.2113	26 36 31.7	2.212
3	4 50 25.90	2.2133	26 38 40.6	2.084
4	4 52 38.76	2.2153	26 40 41.8	1.956
5	4 54 51.73	2.2172	26 42 35.3	1.827
6	4 57 4.82	2.2190	26 44 21.0	1.697
7	4 59 18.01	2.2207	26 45 58.9	1.568
8	5 1 31.30	2.2223	26 47 29.1	1.438
9	5 3 44.68	2.2238	26 48 51.5	1.307
10	5 5 58.16	2.2253	26 50 6.0	1.177
11	5 8 11.72	2.2268	26 51 12.7	1.047
12	5 10 25.37	2.2282	26 52 11.6	0.916
13	5 12 39.10	2.2294	26 53 2.6	0.784
14	5 14 52.90	2.2307	26 53 45.7	0.653
15	5 17 6.78	2.2319	26 54 21.0	0.521
16	5 19 20.73	2.2330	26 54 48.3	0.389
17	5 21 34.74	2.2339	26 55 7.7	0.257
18	5 23 48.80	2.2348	26 55 19.2	+ 0.125
19	5 26 2.92	2.2357	26 55 22.7	− 0.007
20	5 28 17.09	2.2365	26 55 18.3	0.139
21	5 30 31.30	2.2372	26 55 6.0	0.272
22	5 32 45.56	2.2379	26 54 45.7	0.405
23	5 34 59.85	2.2385	26 54 17.4	0.537
24	5 37 14.18	2.2391	N.26 53 41.2	0.670

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 5.

Hour	Right Ascension	Diff. for 1 M.	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	5 37 14.18	[illegible]	N 26 53 41.2	[illegible]
1	5 39 28.54	[illegible]	26 52 57.0	[illegible]
2	5 41 42.93	[illegible]	26 52 4.8	[illegible]
3	5 43 57.31	[illegible]	26 51 4.6	[illegible]
4	5 46 11.72	[illegible]	26 49 56.4	[illegible]
5	5 48 26.14	[illegible]	26 48 40.2	[illegible]
6	5 50 40.57	[illegible]	26 47 16.0	[illegible]
7	5 52 55.00	[illegible]	26 45 43.8	[illegible]
8	5 55 9.43	[illegible]	26 44 3.6	[illegible]
9	5 57 23.86	[illegible]	26 42 15.5	[illegible]
10	5 59 38.28	[illegible]	26 40 19.4	[illegible]
11	6 1 52.68	[illegible]	26 38 15.3	[illegible]
12	6 4 7.07	[illegible]	26 36 3.2	[illegible]
13	6 6 21.44	[illegible]	26 33 43.1	[illegible]
14	6 8 35.78	[illegible]	26 31 15.1	[illegible]
15	6 10 50.08	[illegible]	26 28 39.1	[illegible]
16	6 13 4.35	[illegible]	26 25 55.1	[illegible]
17	6 15 18.58	[illegible]	26 23 3.2	[illegible]
18	6 17 32.78	[illegible]	26 20 3.4	[illegible]
19	6 19 46.93	[illegible]	26 16 55.7	[illegible]
20	6 22 1.03	[illegible]	26 13 40.0	[illegible]
21	6 24 15.07	[illegible]	26 10 16.4	[illegible]
22	6 26 29.06	[illegible]	26 6 44.9	[illegible]
23	6 28 42.99	[illegible]	N.26 3 5.6	[illegible]

THURSDAY 6.

Hour	Right Ascension	Diff. for 1 M.	Declination	Diff. for 1 Minute
0	6 30 56.85	[illegible]	N 25 59 18.4	[illegible]
1	6 33 10.65	[illegible]	25 55 23.3	[illegible]
2	6 35 24.38	[illegible]	25 51 20.4	[illegible]
3	6 37 38.03	[illegible]	25 47 9.7	[illegible]
4	6 39 51.61	[illegible]	25 42 51.2	[illegible]
5	6 42 5.10	[illegible]	25 38 24.9	[illegible]
6	6 44 18.51	[illegible]	25 33 50.9	[illegible]
7	6 46 31.83	[illegible]	25 29 9.1	[illegible]
8	6 48 45.06	[illegible]	25 24 19.6	[illegible]
9	6 50 58.21	[illegible]	25 19 22.4	[illegible]
10	6 53 11.26	[illegible]	25 14 17.5	[illegible]
11	6 55 24.21	[illegible]	25 9 4.9	[illegible]
12	6 57 37.06	[illegible]	25 3 44.7	[illegible]
13	6 59 49.80	[illegible]	24 58 16.8	[illegible]
14	7 2 2.44	[illegible]	24 52 41.4	[illegible]
15	7 4 14.97	[illegible]	24 46 58.4	[illegible]
16	7 6 27.39	[illegible]	24 41 7.9	[illegible]
17	7 8 [illegible]	[illegible]	24 35 9.8	[illegible]
18	7 10 51.95	[illegible]	24 29 4.8	[illegible]
19	7 13 3.[illegible]	[illegible]	24 22 51.2	[illegible]
20	7 15 15.[illegible]	[illegible]	24 16 30.7	[illegible]
21	7 17 27.73	[illegible]	24 10 2.[illegible]	[illegible]
22	7 19 39.43	[illegible]	24 3 27.5	[illegible]
23	7 21 51.01	[illegible]	23 56 44.9	[illegible]
24	7 24 2.46	[illegible]	N 23 49 54.9	[illegible]

FRIDAY 7.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	7 24 2.46	[illegible]	N.23 49 54.9	[illegible]
1	7 26 13.78	[illegible]	23 42 57.6	7.013
2	7 28 24.97	[illegible]	23 35 53.1	7.136
3	7 30 36.03	[illegible]	23 28 41.3	[illegible]
4	7 32 46.95	[illegible]	23 21 22.3	[illegible]
5	7 34 57.74	[illegible]	23 13 56.2	[illegible]
6	7 37 8.39	[illegible]	23 6 22.9	[illegible]
7	7 39 18.90	[illegible]	22 58 42.4	[illegible]
8	7 41 29.28	[illegible]	22 50 54.9	[illegible]
9	7 43 39.52	[illegible]	22 43 0.4	[illegible]
10	7 45 49.62	[illegible]	22 34 58.9	[illegible]
11	7 47 59.58	[illegible]	22 26 50.4	[illegible]
12	7 50 9.39	[illegible]	22 18 34.9	8.316
13	7 52 19.06	[illegible]	22 10 12.5	[illegible]
14	7 54 28.59	[illegible]	22 1 43.3	[illegible]
15	7 56 37.98	[illegible]	21 53 7.2	[illegible]
16	7 58 47.23	[illegible]	21 44 24.3	8.771
17	8 0 56.33	[illegible]	21 35 34.7	[illegible]
18	8 3 5.29	[illegible]	21 26 38.4	[illegible]
19	8 5 14.10	[illegible]	21 17 35.4	[illegible]
20	8 7 22.77	[illegible]	21 8 25.7	[illegible]
21	8 9 31.30	[illegible]	20 59 9.4	[illegible]
22	8 11 39.69	[illegible]	20 49 46.6	[illegible]
23	8 13 47.93	[illegible]	N 20 40 17.3	[illegible]

SATURDAY 8.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	8 15 56.03	[illegible]	N.20 30 41.4	[illegible]
1	8 18 3.99	[illegible]	20 20 59.1	[illegible]
2	8 20 11.81	[illegible]	20 11 10.4	[illegible]
3	8 22 19.48	[illegible]	20 1 15.3	[illegible]
4	8 24 27.01	[illegible]	19 51 13.9	[illegible]
5	8 26 34.41	[illegible]	19 41 6.2	[illegible]
6	8 28 41.67	[illegible]	19 30 52.3	[illegible]
7	8 30 48.79	[illegible]	19 20 32.2	[illegible]
8	8 32 55.75	[illegible]	19 10 5.9	[illegible]
9	8 35 2.63	[illegible]	18 59 33.4	[illegible]
10	8 37 9.35	[illegible]	18 48 54.8	[illegible]
11	8 39 15.93	[illegible]	18 38 10.3	[illegible]
12	8 41 22.38	[illegible]	18 27 19.8	[illegible]
13	8 43 28.70	[illegible]	18 16 23.4	[illegible]
14	8 45 34.89	[illegible]	18 5 21.0	[illegible]
15	8 47 40.96	[illegible]	17 54 12.7	[illegible]
16	8 49 46.90	[illegible]	17 42 58.6	[illegible]
17	8 51 52.72	[illegible]	17 31 3[illegible].8	[illegible]
18	8 53 58.42	[illegible]	17 20 13.8	[illegible]
19	8 56 4.00	[illegible]	17 8 42.0	[illegible]
20	8 58 9.46	[illegible]	16 57 5.1	[illegible]
21	9 0 14.90	[illegible]	16 45 22.6	[illegible]
22	9 2 20.03	[illegible]	16 33 34.6	[illegible]
23	9 4 25.15	[illegible]	16 21 41.1	[illegible]
24	9 6 [illegible].17	[illegible]	N 16 9 42.1	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	9 6 30.17	2.0827	N.16 9 42.1	12.028
1	9 8 35.08	2.0809	15 57 37.7	12.118
2	9 10 39.88	2.0792	15 45 28.0	12.207
3	9 12 44.58	2.0775	15 33 12.9	12.296
4	9 14 49.18	2.0759	15 20 52.5	12.382
5	9 16 53.69	2.0743	15 8 27.0	12.468
6	9 18 58.10	2.0727	14 55 56.3	12.554
7	9 21 2.42	2.0712	14 43 20.5	12.639
8	9 23 6.65	2.0698	14 30 39.6	12.723
9	9 25 10.80	2.0685	14 17 53.7	12.807
10	9 27 14.87	2.0672	14 5 2.8	12.889
11	9 29 18.86	2.0659	13 52 7.0	12.971
12	9 31 22.77	2.0646	13 39 6.3	13.052
13	9 33 26.61	2.0634	13 26 0.8	13.132
14	9 35 30.38	2.0622	13 12 50.5	13.211
15	9 37 34.08	2.0611	12 59 35.5	13.288
16	9 39 37.71	2.0601	12 46 15.9	13.366
17	9 41 41.29	2.0592	12 32 51.6	13.442
18	9 43 44.81	2.0582	12 19 22.8	13.517
19	9 45 48.27	2.0574	12 5 49.5	13.592
20	9 47 51.69	2.0566	11 52 11.7	13.666
21	9 49 55.06	2.0558	11 38 29.5	13.739
22	9 51 58.39	2.0552	11 24 43.0	13.812
23	9 54 1.68	2.0546	N.11 10 52.1	13.883

MONDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	9 56 4.94	2.0541	N.10 56 57.0	13.953
1	9 58 8.17	2.0536	10 42 57.7	14.022
2	10 0 11.37	2.0531	10 28 54.3	14.091
3	10 2 14.54	2.0527	10 14 46.8	14.158
4	10 4 17.69	2.0524	10 0 35.3	14.225
5	10 6 20.83	2.0522	9 46 19.8	14.290
6	10 8 23.96	2.0521	9 32 0.5	14.354
7	10 10 27.08	2.0520	9 17 37.3	14.418
8	10 12 30.20	2.0519	9 3 10.3	14.482
9	10 14 33.31	2.0519	8 48 39.5	14.543
10	10 16 36.43	2.0521	8 34 5.1	14.603
11	10 18 39.56	2.0523	8 19 27.1	14.663
12	10 20 42.70	2.0525	8 4 45.5	14.722
13	10 22 45.86	2.0528	7 50 0.4	14.780
14	10 24 49.04	2.0532	7 35 11.9	14.837
15	10 26 52.25	2.0537	7 20 20.0	14.892
16	10 28 55.49	2.0542	7 5 24.8	14.947
17	10 30 58.76	2.0548	6 50 26.4	15.001
18	10 33 2.07	2.0555	6 35 24.7	15.054
19	10 35 5.42	2.0563	6 20 19.9	15.105
20	10 37 8.83	2.0572	6 5 12.1	15.155
21	10 39 12.29	2.0582	5 50 1.3	15.204
22	10 41 15.81	2.0592	5 34 47.6	15.252
23	10 43 19.39	2.0602	5 19 31.0	15.300
24	10 45 23.04	2.0614	N 5 4 11.6	15.346

TUESDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	10 45 23.04	2.0614	N. 5 4 11.6	15.346
1	10 47 26.76	2.0627	4 48 49.5	15.391
2	10 49 30.56	2.0640	4 33 24.7	15.435
3	10 51 34.44	2.0653	4 17 57.3	15.477
4	10 53 38.40	2.0668	4 2 27.4	15.518
5	10 55 42.46	2.0684	3 46 55.1	15.558
6	10 57 46.61	2.0700	3 31 20.4	15.597
7	10 59 50.86	2.0718	3 15 43.4	15.636
8	11 1 55.22	2.0737	3 0 4.1	15.673
9	11 3 59.70	2.0756	2 44 22.7	15.708
10	11 6 4.29	2.0775	2 28 39.2	15.742
11	11 8 9.00	2.0796	2 12 53.7	15.774
12	11 10 13.84	2.0817	1 57 6.3	15.806
13	11 12 18.81	2.0840	1 41 17.0	15.837
14	11 14 23.92	2.0863	1 25 25.9	15.866
15	11 16 29.17	2.0887	1 9 33.1	15.893
16	11 18 34.56	2.0912	0 53 38.7	15.920
17	11 20 40.11	2.0938	0 37 42.7	15.946
18	11 22 45.82	2.0965	0 21 45.2	15.969
19	11 24 51.69	2.0992	N. 0 5 46.4	15.992
20	11 26 57.73	2.1020	S. 0 10 13.7	16.012
21	11 29 3.93	2.1048	0 26 15.1	16.032
22	11 31 10.31	2.1079	0 42 17.6	16.051
23	11 33 16.88	2.1111	S. 0 58 21.2	16.068

WEDNESDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	11 35 23.64	2.1143	S. 1 14 25.7	16.083
1	11 37 30.60	2.1176	1 30 31.1	16.098
2	11 39 37.75	2.1209	1 46 37.4	16.110
3	11 41 45.10	2.1242	2 2 44.3	16.120
4	11 43 52.66	2.1278	2 18 51.8	16.130
5	11 46 0.44	2.1315	2 34 59.9	16.138
6	11 48 8.44	2.1353	2 51 8.4	16.145
7	11 50 16.67	2.1391	3 7 17.3	16.150
8	11 52 25.13	2.1429	3 23 26.4	16.153
9	11 54 33.82	2.1468	3 39 35.7	16.155
10	11 56 42.75	2.1509	3 55 45.0	16.155
11	11 58 51.93	2.1551	4 11 54.3	16.154
12	12 1 1.37	2.1594	4 28 3.5	16.152
13	12 3 11.06	2.1637	4 44 12.5	16.147
14	12 5 21.01	2.1682	5 0 21.1	16.140
15	12 7 31.24	2.1727	5 16 29.3	16.132
16	12 9 41.74	2.1772	5 32 37.0	16.123
17	12 11 52.51	2.1818	5 48 44.1	16.112
18	12 14 3.56	2.1866	6 4 50.4	16.098
19	12 16 14.90	2.1915	6 20 55.9	16.083
20	12 18 26.54	2.1965	6 37 0.4	16.067
21	12 20 38.48	2.2016	6 53 3.9	16.048
22	12 22 50.73	2.2067	7 9 6.2	16.028
23	12 25 3.28	2.2118	7 25 7.3	16.007
24	12 27 16.14	2.2170	S. 7 41 7.0	15.983

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 13.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	12 27 16.14	[illegible]	S. 7 41 7.0	[illegible]
1	12 29 [illegible]	[illegible]	7 57 5.2	[illegible]
2	12 31 [illegible]	[illegible]	8 13 1.8	[illegible]
3	12 33 [illegible]	[illegible]	8 [illegible] 56.8	[illegible]
4	12 36 [illegible]	[illegible]	8 44 49.9	[illegible]
5	12 38 [illegible]	[illegible]	9 0 41.1	[illegible]
6	12 40 40.21	[illegible]	9 16 30.2	[illegible]
7	12 42 55.41	[illegible]	9 32 17.1	[illegible]
8	12 45 10.97	[illegible]	9 48 1.8	[illegible]
9	12 47 26.[illegible]	[illegible]	10 3 44.1	[illegible]
10	12 49 43.16	[illegible]	10 19 23.9	[illegible]
11	12 51 [illegible]	[illegible]	10 35 1.0	[illegible]
12	12 54 16.51	[illegible]	10 50 35.4	[illegible]
13	12 56 34.19	[illegible]	11 6 6.9	[illegible]
14	12 58 51.[illegible]	[illegible]	11 21 35.4	[illegible]
15	13 1 10.11	[illegible]	11 37 0.7	[illegible]
16	13 3 [illegible]	[illegible]	11 52 22.8	[illegible]
17	13 5 [illegible]	[illegible]	12 7 41.5	[illegible]
18	13 8 [illegible]	[illegible]	12 22 [illegible]	[illegible]
19	13 10 26.02	[illegible]	12 38 [illegible]	[illegible]
20	13 12 46.75	[illegible]	12 53 16.2	[illegible]
21	13 15 7.25	[illegible]	13 8 20.1	[illegible]
22	13 17 [illegible]	[illegible]	13 23 20.0	[illegible]
23	13 19 [illegible]	[illegible]	S.13 38 15.8	[illegible]

FRIDAY 14.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	13 22 11.[illegible]	[illegible]	S.13 53 7.3	[illegible]
1	13 24 [illegible]	[illegible]	14 7 54.4	[illegible]
2	13 26 [illegible]	[illegible]	14 22 [illegible]	[illegible]
3	13 29 [illegible]	[illegible]	14 37 14.8	[illegible]
4	13 31 [illegible]	[illegible]	14 51 [illegible]	[illegible]
5	13 34 [illegible]	[illegible]	15 6 15.9	[illegible]
6	13 [illegible]	[illegible]	15 [illegible]	[illegible]
7	13 38 55.71	[illegible]	15 [illegible]	[illegible]
8	13 41 [illegible]	[illegible]	15 [illegible]	[illegible]
9	13 43 [illegible]	[illegible]	[illegible]	[illegible]
10	13 46 [illegible]	[illegible]	[illegible]	[illegible]
11	13 48 [illegible]	[illegible]	[illegible]	[illegible]
12	13 51 [illegible]	[illegible]	[illegible]	[illegible]
13	13 53 [illegible]	[illegible]	[illegible]	[illegible]
14	13 56 [illegible]	[illegible]	[illegible]	[illegible]
15	13 58 [illegible]	[illegible]	[illegible]	[illegible]
16	14 0 [illegible]	[illegible]	[illegible]	[illegible]
17	14 3 [illegible]	[illegible]	[illegible]	[illegible]
18	14 5 [illegible]	[illegible]	[illegible]	[illegible]
19	14 8 [illegible]	[illegible]	[illegible]	[illegible]
20	14 10 [illegible]	[illegible]	[illegible]	[illegible]
21	14 13 [illegible]	[illegible]	[illegible]	[illegible]
22	14 16 [illegible]	[illegible]	[illegible]	[illegible]
23	14 18 32.72	[illegible]	[illegible]	[illegible]
24	14 21 [illegible]	[illegible]	S. [illegible]	[illegible]

SATURDAY 15.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	14 21 5.10	[illegible]	S.19 22 [illegible]	[illegible]
1	14 23 37.93	[illegible]	19 34 49.6	[illegible]
2	14 26 11.21	[illegible]	19 47 2.3	[illegible]
3	14 28 44.94	[illegible]	19 59 7.1	[illegible]
4	14 31 19.11	[illegible]	20 11 3.8	[illegible]
5	14 33 53.72	[illegible]	20 22 52.3	[illegible]
6	14 36 28.75	[illegible]	20 34 32.4	[illegible]
7	14 39 4.27	[illegible]	20 46 4.1	[illegible]
8	14 41 40.19	[illegible]	20 57 27.1	[illegible]
9	14 44 16.55	[illegible]	21 8 41.4	[illegible]
10	14 46 53.33	[illegible]	21 19 46.[illegible]	[illegible]
11	14 49 30.53	[illegible]	21 30 4[illegible]	[illegible]
12	14 52 8.16	[illegible]	21 41 [illegible]	[illegible]
13	14 54 46.21	[illegible]	21 52 [illegible]	[illegible]
14	14 57 24.[illegible]	[illegible]	22 2 [illegible]	[illegible]
15	15 0 3.52	[illegible]	22 12 56.[illegible]	[illegible]
16	15 2 42.78	[illegible]	22 23 5.[illegible]	[illegible]
17	15 5 22.45	[illegible]	22 33 5.6	[illegible]
18	15 8 2.51	[illegible]	22 42 55.5	[illegible]
19	15 10 42.95	[illegible]	22 52 35.5	[illegible]
20	15 13 23.[illegible]	[illegible]	23 2 5.3	[illegible]
21	15 16 4.[illegible]	[illegible]	23 11 24.9	[illegible]
22	15 18 4[illegible] 54	[illegible]	23 20 [illegible]	[illegible]
23	15 21 2[illegible] 47	[illegible]	S.23 29 33.0	[illegible]

SUNDAY 16.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	15 24 10.75	[illegible]	S.23 38 21.3	[illegible]
1	15 26 [illegible]	[illegible]	23 46 [illegible]	[illegible]
2	15 [illegible]	[illegible]	23 55 25.8	[illegible]
3	15 32 [illegible]	[illegible]	24 3 41.9	[illegible]
4	15 35 [illegible]	[illegible]	24 11 47.0	[illegible]
5	15 [illegible]	[illegible]	24 19 41.1	[illegible]
6	15 40 [illegible]	[illegible]	24 27 24.0	[illegible]
7	15 43 [illegible]	[illegible]	24 34 55.7	[illegible]
8	15 [illegible]	[illegible]	24 42 [illegible]	[illegible]
9	15 48 [illegible]	[illegible]	[illegible]	[illegible]
10	15 51 31.23	[illegible]	[illegible]	[illegible]
11	15 54 [illegible]	[illegible]	[illegible]	[illegible]
12	15 [illegible]	[illegible]	25 9 [illegible]	[illegible]
13	15 [illegible]	[illegible]	25 16 [illegible]	[illegible]
14	16 [illegible]	[illegible]	25 22 [illegible]	[illegible]
15	16 5 [illegible]	[illegible]	[illegible]	[illegible]
16	16 [illegible]	[illegible]	[illegible]	[illegible]
17	16 10 [illegible]	[illegible]	[illegible]	[illegible]
18	16 13 [illegible]	[illegible]	25 44 [illegible]	[illegible]
19	16 16 [illegible]	[illegible]	[illegible]	[illegible]
20	16 [illegible]	[illegible]	25 55 [illegible]	[illegible]
21	16 22 [illegible]	[illegible]	[illegible]	[illegible]
22	16 24 [illegible]	[illegible]	26 4 [illegible]	[illegible]
23	16 [illegible]	[illegible]	[illegible]	[illegible]
24	16 [illegible]	[illegible]	S. [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 17.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	16 30 28.67	2.8008	S.26 13 1.2	4.075
1	16 33 16.77	2.8023	26 16 58.4	3.850
2	16 36 4.95	2.8037	26 20 43.2	3.643
3	16 38 53.21	2.8048	26 24 15.5	3.435
4	16 41 41.53	2.8057	26 27 35.4	3.227
5	16 44 29.90	2.8065	26 30 42.8	3.019
6	16 47 18.31	2.8070	26 33 37.7	2.811
7	16 50 6.74	2.8072	26 36 20.1	2.602
8	16 52 55.18	2.8072	26 38 50.0	2.393
9	16 55 43.61	2.8071	26 41 7.3	2.184
10	16 58 32.03	2.8068	26 43 12.1	1.975
11	17 1 20.42	2.8062	26 45 4.3	1.766
12	17 4 8.77	2.8053	26 46 44.0	1.557
13	17 6 57.06	2.8042	26 48 11.1	1.349
14	17 9 45.28	2.8031	26 49 25.8	1.141
15	17 12 33.43	2.8017	26 50 28.0	0.932
16	17 15 21.48	2.7999	26 51 17.7	0.724
17	17 18 9.42	2.7980	26 51 54.9	0.517
18	17 20 57.24	2.7959	26 52 19.7	0.310
19	17 23 44.93	2.7936	26 52 32.1	− 0.103
20	17 26 32.47	2.7910	26 52 32.1	+ 0.103
21	17 29 19.85	2.7882	26 52 19.7	0.309
22	17 32 7.06	2.7853	26 51 55.0	0.514
23	17 34 54.09	2.7822	S.26 51 18.0	0.718

TUESDAY 18.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	17 37 40.93	2.7789	S.26 50 28.8	0.922
1	17 40 27.56	2.7753	26 49 27.4	1.124
2	17 43 13.96	2.7714	26 48 13.9	1.326
3	17 46 0.13	2.7675	26 46 48.3	1.527
4	17 48 46.06	2.7633	26 45 10.6	1.727
5	17 51 31.73	2.7589	26 43 21.0	1.926
6	17 54 17.13	2.7543	26 41 19.5	2.124
7	17 57 2.25	2.7497	26 39 6.1	2.321
8	17 59 47.09	2.7448	26 36 41.0	2.516
9	18 2 31.63	2.7397	26 34 4.2	2.710
10	18 5 15.86	2.7344	26 31 15.8	2.903
11	18 7 59.76	2.7289	26 28 15.8	3.096
12	18 10 43.33	2.7233	26 25 4.3	3.287
13	18 13 26.56	2.7176	26 21 41.4	3.476
14	18 16 9.44	2.7117	26 18 7.2	3.663
15	18 18 51.96	2.7056	26 14 21.8	3.850
16	18 21 34.11	2.6993	26 10 25.2	4.036
17	18 24 15.88	2.6928	26 6 17.5	4.219
18	18 26 57.25	2.6863	26 1 58.9	4.401
19	18 29 38.23	2.6797	25 57 29.4	4.582
20	18 32 18.81	2.6729	25 52 49.1	4.761
21	18 34 58.98	2.6659	25 47 58.1	4.938
22	18 37 38.72	2.6588	25 42 56.5	5.113
23	18 40 18.04	2.6517	25 37 44.5	5.287
24	18 42 56.92	2.6443	S.25 32 22.1	5.459

WEDNESDAY 19.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	18 42 56.92	2.6443	S.25 32 22.1	5.459
1	18 45 35.36	2.6369	25 26 49.4	5.630
2	18 48 13.35	2.6293	25 21 6.5	5.799
3	18 50 50.88	2.6217	25 15 13.5	5.967
4	18 53 27.95	2.6140	25 9 10.5	6.132
5	18 56 4.56	2.6062	25 2 57.7	6.295
6	18 58 40.70	2.5983	24 56 35.1	6.457
7	19 1 16.36	2.5903	24 50 2.9	6.616
8	19 3 51.54	2.5822	24 43 21.2	6.774
9	19 6 26.22	2.5739	24 36 30.0	6.931
10	19 9 0.41	2.5657	24 29 29.5	7.085
11	19 11 34.10	2.5574	24 22 19.8	7.237
12	19 14 7.30	2.5491	24 15 1.1	7.387
13	19 16 39.99	2.5406	24 7 33.4	7.536
14	19 19 12.17	2.5321	23 59 56.8	7.682
15	19 21 43.84	2.5236	23 52 11.5	7.827
16	19 24 15.00	2.5150	23 44 17.6	7.969
17	19 26 45.64	2.5063	23 36 15.2	8.111
18	19 29 15.76	2.4977	23 28 4.3	8.250
19	19 31 45.36	2.4889	23 19 45.2	8.387
20	19 34 14.43	2.4802	23 11 17.9	8.522
21	19 36 42.98	2.4714	23 2 42.6	8.654
22	19 39 11.00	2.4627	22 53 59.4	8.786
23	19 41 38.50	2.4539	S.22 45 8.3	8.916

THURSDAY 20.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	19 44 5.47	2.4450	S.22 36 9.5	9.043
1	19 46 31.90	2.4362	22 27 3.2	9.168
2	19 48 57.81	2.4274	22 17 19.4	9.291
3	19 51 23.19	2.4186	22 8 28.3	9.412
4	19 53 48.04	2.4097	21 59 0.0	9.531
5	19 56 12.35	2.4007	21 49 24.6	9.649
6	19 58 36.13	2.3919	21 39 42.1	9.765
7	20 0 59.38	2.3831	21 29 52.8	9.878
8	20 3 22.10	2.3743	21 19 56.7	9.990
9	20 5 44.30	2.3656	21 9 54.0	10.099
10	20 8 5.97	2.3567	20 59 44.8	10.207
11	20 10 27.11	2.3479	20 49 29.1	10.314
12	20 12 47.72	2.3392	20 39 7.1	10.418
13	20 15 7.81	2.3305	20 28 38.9	10.521
14	20 17 27.38	2.3218	20 18 4.6	10.621
15	20 19 46.43	2.3132	20 7 24.4	10.719
16	20 22 4.97	2.3046	19 56 38.3	10.817
17	20 24 22.99	2.2960	19 45 46.4	10.912
18	20 26 40.49	2.2874	19 34 46.9	11.005
19	20 28 57.48	2.2790	19 23 45.8	11.097
20	20 31 13.97	2.2706	19 12 37.3	11.186
21	20 33 29.95	2.2622	19 1 23.5	11.274
22	20 35 45.43	2.2538	18 50 4.4	11.362
23	20 38 0.41	2.2455	18 38 40.2	11.445
24	20 40 14.89	2.2372	S.18 27 11.0	11.587

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 21.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	20 40 14.83	[illegible]	S. 18 27 11.0	[illegible]
1	20 42 28.87	[illegible]	18 15 [illegible]	[illegible]
2	20 44 42.37	[illegible]	18 3 57.0	[illegible]
3	20 46 55.1[illegible]	[illegible]	17 52 14.2	[illegible]
4	20 49 7.91	[illegible]	17 40 25.9	[illegible]
5	20 51 19.[illegible]	[illegible]	17 28 33.0	[illegible]
6	20 53 31.53	[illegible]	17 16 35.7	[illegible]
7	20 55 42.[illegible]3	[illegible]	17 4 34.1	[illegible]
8	20 57 53.[illegible]	[illegible]	16 52 2[illegible].3	[illegible]
9	21 0 3.43	[illegible]	16 40 1[illegible].3	[illegible]
10	21 2 13.14	[illegible]	16 28 4.3	[illegible]
11	21 4 22.[illegible]	[illegible]	16 15 46.4	[illegible]
12	21 6 31.19	[illegible]	16 3 24.6	[illegible]
13	21 8 3[illegible].55	[illegible]	15 50 5[illegible].1	[illegible]
14	21 10 47.4[illegible]	[illegible]	15 38 2[illegible].9	[illegible]
15	21 12 54.[illegible]3	[illegible]	15 25 57.1	[illegible]
16	21 15 1.[illegible]	[illegible]	15 13 20.9	[illegible]
17	21 17 [illegible]	[illegible]	15 0 41.3	[illegible]
18	21 19 14.[illegible]	[illegible]	14 47 5[illegible].3	[illegible]
19	21 21 [illegible]	[illegible]	14 35 12.1	[illegible]
20	21 23 2[illegible]	[illegible]	14 22 2[illegible].8	[illegible]
21	21 25 3[illegible]	[illegible]	14 9 3[illegible].4	[illegible]
22	21 27 35.34	[illegible]	13 56 35.0	[illegible]
23	21 29 3[illegible].47	[illegible]	S. 13 43 3[illegible].7	[illegible]

SATURDAY 22.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	21 31 43.[illegible]0	[illegible]	S. 13 30 35.7	[illegible]
1	21 33 4[illegible].54	[illegible]	13 17 3[illegible]	[illegible]
2	21 35 4[illegible]	[illegible]	13 4 [illegible]5.4	[illegible]
3	21 37 52.[illegible]	[illegible]	12 51 1[illegible].4	[illegible]
4	21 39 54.2[illegible]	[illegible]	12 38 4.9	[illegible]
5	21 41 [illegible]	[illegible]	12 24 5[illegible]	[illegible]
6	21 43 5[illegible].57	[illegible]	12 11 34.6	[illegible]
7	21 45 5[illegible]	[illegible]	11 58 1[illegible].0	[illegible]
8	21 47 5[illegible].42	[illegible]	11 44 5[illegible].2	[illegible]
9	21 49 5[illegible]	[illegible]	11 31 3[illegible].3	[illegible]
10	21 51 5[illegible]	[illegible]	11 18 7.4	[illegible]
11	21 53 5[illegible]	[illegible]	11 4 4[illegible].4	[illegible]
12	21 55 5[illegible]	[illegible]	10 51 1[illegible].5	[illegible]
13	21 57 5[illegible]	[illegible]	10 37 4[illegible]	[illegible]
14	21 59 5[illegible]	[illegible]	10 24 [illegible].2	[illegible]
15	22 1 55.[illegible]	[illegible]	10 10 [illegible]4.0	[illegible]
16	22 3 5[illegible]	[illegible]	9 5[illegible] [illegible].1	[illegible]
17	22 5 5[illegible]	[illegible]	9 4[illegible] [illegible]	[illegible]
18	22 7 4[illegible].43	[illegible]	9 [illegible] 4[illegible]	[illegible]
19	22 9 4[illegible]	[illegible]	9 1[illegible] [illegible]	[illegible]
20	22 11 42.4[illegible]	[illegible]	9 2 [illegible]	[illegible]
21	22 13 3[illegible].07	[illegible]	8 4[illegible] [illegible]	[illegible]
22	22 15 [illegible].17	[illegible]	8 34 5[illegible]	[illegible]
23	22 17 31.40	[illegible]	8 21 [illegible]	[illegible]
24	22 19 27.15	[illegible]	S. 8 7 2[illegible].1	[illegible]

SUNDAY 23.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	22 19 27.15	[illegible]	S. 8 7 20.1	[illegible]
1	22 21 22.64	[illegible]	7 53 32.3	[illegible]
2	22 23 17.57	[illegible]	7 39 43.6	[illegible]
3	22 25 12.83	[illegible]	7 25 53.9	[illegible]
4	22 27 7.54	[illegible]	7 12 3.3	[illegible]
5	22 29 2.01	[illegible]	6 58 11.9	[illegible]
6	22 30 56.24	[illegible]	6 44 19.7	[illegible]
7	22 32 50.23	[illegible]	6 30 26.8	[illegible]
8	22 34 43.99	[illegible]	6 16 33.2	[illegible]
9	22 36 37.52	[illegible]	6 2 39.0	[illegible]
10	22 38 30.83	[illegible]	5 48 44.3	[illegible]
11	22 40 23.93	[illegible]	5 34 49.0	[illegible]
12	22 42 16.81	[illegible]	5 20 53.3	[illegible]
13	22 44 9.48	[illegible]	5 6 57.2	[illegible]
14	22 46 1.96	[illegible]	4 53 0.8	[illegible]
15	22 47 54.25	[illegible]	4 39 4.0	[illegible]
16	22 49 46.35	[illegible]	4 25 7.0	[illegible]
17	22 51 38.26	[illegible]	4 11 9.9	[illegible]
18	22 53 29.99	[illegible]	3 57 12.6	[illegible]
19	22 55 21.55	[illegible]	3 43 15.2	[illegible]
20	22 57 12.94	[illegible]	3 29 17.8	[illegible]
21	22 59 4.16	[illegible]	3 15 20.4	[illegible]
22	23 0 55.22	[illegible]	3 1 23.0	[illegible]
23	23 2 46.13	[illegible]	S. 2 47 25.8	[illegible]

MONDAY 24.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	23 4 36.88	[illegible]	S. 2 33 28.7	[illegible]
1	23 6 27.49	[illegible]	2 19 31.8	[illegible]
2	23 8 17.[illegible]6	[illegible]	2 5 35.2	[illegible]
3	23 10 8.30	[illegible]	1 51 38.8	[illegible]
4	23 11 58.51	[illegible]	1 37 42.8	[illegible]
5	23 13 48.59	[illegible]	1 23 47.2	[illegible]
6	23 15 38.54	[illegible]	1 9 52.0	[illegible]
7	23 17 28.38	[illegible]	0 55 57.3	[illegible]
8	23 19 18.11	[illegible]	0 42 3.2	[illegible]
9	23 21 7.74	[illegible]	0 28 9.6	[illegible]
10	23 22 57.26	[illegible]	0 14 16.6	[illegible]
11	23 24 4[illegible]	[illegible]	S. 0 0 24.3	[illegible]
12	23 26 36.08	[illegible]	N. 0 13 27.3	[illegible]
13	23 28 25.27	[illegible]	0 27 18.1	[illegible]
14	23 30 14.44	[illegible]	0 41 8.1	[illegible]
15	23 32 3.52	[illegible]	0 54 57.4	[illegible]
16	23 33 52.53	[illegible]	1 8 45.5	[illegible]
17	23 35 41.48	[illegible]	1 22 33.2	[illegible]
18	23 37 30.36	[illegible]	1 36 19.7	[illegible]
19	23 39 19.1[illegible]	[illegible]	1 50 5.2	[illegible]
20	23 41 7.[illegible]5	[illegible]	2 3 4[illegible].6	[illegible]
21	23 42 5[illegible]	[illegible]	2 17 32.9	[illegible]
22	23 44 45.35	[illegible]	2 31 15.1	[illegible]
23	23 46 33.93	[illegible]	2 44 5[illegible].1	[illegible]
24	23 48 22.57	[illegible]	N. 2 58 35.9	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 25.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	23 48 22.57	1.8096	N. 2 58 35.9	13.653
1	23 50 11.13	1.8092	3 12 14.5	13.631
2	23 51 59.67	1.8088	3 25 51.7	13.609
3	23 53 48.18	1.8084	3 39 27.6	13.587
4	23 55 36.67	1.8081	3 53 2.1	13.563
5	23 57 25.15	1.8079	4 6 35.2	13.539
6	23 59 13.62	1.8077	4 20 6.8	13.514
7	0 1 2.08	1.8077	4 33 36.9	13.488
8	0 2 50.54	1.8077	4 47 5.4	13.462
9	0 4 39.00	1.8078	5 0 32.4	13.436
10	0 6 27.47	1.8079	5 13 57.7	13.409
11	0 8 15.95	1.8082	5 27 21.4	13.381
12	0 10 4.45	1.8085	5 40 43.4	13.352
13	0 11 52.97	1.8088	5 54 3.6	13.322
14	0 13 41.51	1.8092	6 7 22.0	13.292
15	0 15 30.08	1.8097	6 20 38.6	13.261
16	0 17 18.68	1.8103	6 33 53.3	13.229
17	0 19 7.32	1.8110	6 47 6.1	13.197
18	0 20 56.00	1.8117	7 0 17.0	13.165
19	0 22 44.73	1.8125	7 13 25.9	13.131
20	0 24 33.50	1.8133	7 26 32.7	13.096
21	0 26 22.32	1.8142	7 39 37.4	13.061
22	0 28 11.20	1.8152	7 52 40.0	13.026
23	0 30 0.14	1.8163	N. 8 5 40.5	12.990

WEDNESDAY 26.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	0 31 49.15	1.8174	N. 8 18 38.8	12.952
1	0 33 38.23	1.8186	8 31 34.8	12.914
2	0 35 27.38	1.8198	8 44 28.5	12.876
3	0 37 16.60	1.8210	8 57 20.0	12.838
4	0 39 5.90	1.8224	9 10 9.1	12.798
5	0 40 55.29	1.8238	9 22 55.8	12.757
6	0 42 44.76	1.8252	9 35 40.0	12.716
7	0 44 34.32	1.8268	9 48 21.7	12.674
8	0 46 23.98	1.8285	10 1 0.9	12.632
9	0 48 13.74	1.8302	10 13 37.6	12.590
10	0 50 3.60	1.8319	10 26 11.7	12.546
11	0 51 53.56	1.8336	10 38 43.1	12.500
12	0 53 43.63	1.8355	10 51 11.7	12.454
13	0 55 33.82	1.8374	11 3 37.6	12.409
14	0 57 24.12	1.8393	11 16 0.8	12.363
15	0 59 14.54	1.8413	11 28 21.2	12.316
16	1 1 5.08	1.8434	11 40 38.7	12.267
17	1 2 55.75	1.8456	11 52 53.3	12.218
18	1 4 46.55	1.8478	12 5 4.9	12.169
19	1 6 37.49	1.8501	12 17 13.6	12.119
20	1 8 28.56	1.8524	12 29 19.2	12.068
21	1 10 19.77	1.8548	12 41 21.7	12.016
22	1 12 11.13	1.8572	12 53 21.1	11.963
23	1 14 2.63	1.8596	13 5 17.3	11.910
24	1 15 54.28	1.8622	N. 13 17 10.3	11.857

THURSDAY 27.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	1 15 54.28	1.8622	N. 13 17 10.3	11.857
1	1 17 46.09	1.8647	13 29 0.1	11.802
2	1 19 38.05	1.8673	13 40 46.6	11.747
3	1 21 30.17	1.8700	13 52 29.7	11.691
4	1 23 22.45	1.8727	14 4 9.5	11.634
5	1 25 14.90	1.8755	14 15 45.8	11.577
6	1 27 7.51	1.8783	14 27 18.7	11.518
7	1 29 0.30	1.8812	14 38 48.0	11.459
8	1 30 53.26	1.8841	14 50 13.8	11.400
9	1 32 46.39	1.8870	15 1 36.0	11.340
10	1 34 39.70	1.8901	15 12 54.6	11.278
11	1 36 33.20	1.8932	15 24 9.4	11.216
12	1 38 26.88	1.8963	15 35 20.5	11.153
13	1 40 20.75	1.8994	15 46 27.8	11.090
14	1 42 14.81	1.9025	15 57 31.3	11.026
15	1 44 9.05	1.9057	16 8 30.9	10.961
16	1 46 3.49	1.9090	16 19 26.6	10.895
17	1 47 58.13	1.9123	16 30 18.3	10.828
18	1 49 52.97	1.9157	16 41 6.0	10.761
19	1 51 48.01	1.9191	16 51 49.6	10.693
20	1 53 43.26	1.9225	17 2 29.1	10.624
21	1 55 38.71	1.9259	17 13 4.5	10.555
22	1 57 34.37	1.9294	17 23 35.7	10.484
23	1 59 30.24	1.9329	N. 17 34 2.6	10.412

FRIDAY 28.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	2 1 26.32	1.9365	N. 17 44 25.2	10.340
1	2 3 22.62	1.9401	17 54 43.4	10.268
2	2 5 19.13	1.9437	18 4 57.3	10.195
3	2 7 15.86	1.9473	18 15 6.8	10.121
4	2 9 12.81	1.9510	18 25 11.8	10.045
5	2 11 9.98	1.9547	18 35 12.2	9.967
6	2 13 7.38	1.9585	18 45 8.1	9.892
7	2 15 5.00	1.9622	18 54 59.3	9.814
8	2 17 2.85	1.9660	19 4 45.8	9.735
9	2 19 0.92	1.9698	19 14 27.6	9.657
10	2 20 59.22	1.9737	19 24 4.6	9.577
11	2 22 57.76	1.9776	19 33 36.8	9.497
12	2 24 56.53	1.9814	19 43 4.2	9.415
13	2 26 55.53	1.9853	19 52 26.6	9.332
14	2 28 54.77	1.9892	20 1 44.0	9.249
15	2 30 54.24	1.9932	20 10 56.5	9.166
16	2 32 53.95	1.9972	20 20 3.9	9.080
17	2 34 53.90	2.0011	20 29 6.1	8.994
18	2 36 54.08	2.0050	20 38 3.2	8.908
19	2 38 54.50	2.0091	20 46 55.1	8.821
20	2 40 55.17	2.0131	20 55 41.7	8.733
21	2 42 56.07	2.0170	21 4 23.0	8.644
22	2 44 57.21	2.0210	21 12 59.0	8.555
23	2 46 58.59	2.0251	21 21 29.6	8.464
24	2 49 0.22	2.0292	N. 21 29 54.7	8.373

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 29.			
	h m s	s	° ′ ″	″
0	2 49 0.22	[illegible]	N. 21 29 54.7	[illegible]
1	2 51 2.09	[illegible]	21 38 14.3	[illegible]
2	2 53 4.20	[illegible]	21 46 28.4	[illegible]
3	2 55 6.55	[illegible]	21 54 36.9	[illegible]
4	2 57 9.15	[illegible]	22 2 39.7	[illegible]
5	2 59 11.99	[illegible]	22 10 36.8	[illegible]
6	3 1 15.07	[illegible]	22 18 28.2	[illegible]
7	3 3 18.39	[illegible]	22 26 13.8	7.711
8	3 5 21.96	[illegible]	22 33 53.5	[illegible]
9	3 7 25.77	[illegible]	22 41 27.4	7.515
10	3 9 29.82	[illegible]	22 48 55.3	[illegible]
11	3 11 34.11	[illegible]	22 56 17.2	7.316
12	3 13 38.64	[illegible]	23 3 33.2	7.216
13	3 15 43.41	[illegible]	23 10 43.1	7.114
14	3 17 48.42	[illegible]	23 17 46.8	7.011
15	3 19 53.67	[illegible]	23 24 44.4	[illegible]
16	3 21 59.15	[illegible]	23 31 35.8	[illegible]
17	3 24 4.87	[illegible]	23 38 20.9	[illegible]
18	3 26 10.83	[illegible]	23 44 59.7	[illegible]
19	3 28 17.02	[illegible]	23 51 32.2	[illegible]
20	3 30 23.44	[illegible]	23 57 58.2	[illegible]
21	3 32 30.09	[illegible]	24 4 17.8	[illegible]
22	3 34 36.97	[illegible]	24 10 30.9	[illegible]
23	3 36 44.08	[illegible]	N. 24 16 37.5	[illegible]
	SUNDAY 30.			
0	3 38 51.41	[illegible]	N. 24 22 37.6	[illegible]
1	3 40 58.97	[illegible]	24 28 31.0	[illegible]
2	3 43 6.75	[illegible]	24 34 17.7	[illegible]
3	3 45 14.75	[illegible]	24 39 57.5	[illegible]
4	3 47 22.97	[illegible]	24 45 31.1	[illegible]
5	3 49 31.40	[illegible]	24 50 57.6	[illegible]
6	3 51 40.05	[illegible]	24 56 17.4	[illegible]
7	3 53 48.91	[illegible]	25 1 30.3	[illegible]
8	3 55 57.98	[illegible]	25 6 36.2	[illegible]
9	3 58 7.26	[illegible]	25 11 35.2	[illegible]
10	4 0 16.74	[illegible]	25 16 27.2	[illegible]
11	4 2 26.42	[illegible]	25 21 12.2	[illegible]
12	4 4 36.31	[illegible]	25 25 50.6	[illegible]
13	4 6 46.19	[illegible]	25 30 20.9	[illegible]
14	4 8 56.16	[illegible]	25 34 44.6	[illegible]
15	4 11 7.12	[illegible]	25 39 1.1	[illegible]
16	4 13 17.77	[illegible]	25 43 10.4	[illegible]
17	4 15 28.40	[illegible]	25 47 12.4	[illegible]
18	4 17 39.12	[illegible]	25 51 7.1	[illegible]
19	4 19 50.91	[illegible]	25 54 54.5	[illegible]
20	4 22 2.17	[illegible]	25 58 34.5	[illegible]
21	4 24 13.71	[illegible]	26 2 7.2	[illegible]
22	4 26 25.42	[illegible]	26 5 32.5	[illegible]
23	4 28 37.[illegible]	[illegible]	26 8 49.3	[illegible]
24	4 30 49.31	[illegible]	N. 26 12 0.6	[illegible]

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	MONDAY 31.			
	h m s	s	° ′ ″	″
0	4 30 49.31	[illegible]	N. 26 12 0.6	[illegible]
1	4 33 1.49	[illegible]	26 15 3.4	[illegible]
2	4 35 13.82	[illegible]	26 17 58.7	[illegible]
3	4 37 26.31	[illegible]	26 20 46.4	[illegible]
4	4 39 38.94	[illegible]	26 23 26.5	[illegible]
5	4 41 51.71	[illegible]	26 25 59.0	[illegible]
6	4 44 4.62	[illegible]	26 28 23.9	[illegible]
7	4 46 17.66	[illegible]	26 30 41.1	[illegible]
8	4 48 30.83	[illegible]	26 32 50.6	[illegible]
9	4 50 44.12	[illegible]	26 34 52.3	[illegible]
10	4 52 57.53	[illegible]	26 36 46.3	[illegible]
11	4 55 11.06	[illegible]	26 38 32.5	[illegible]
12	4 57 24.71	[illegible]	26 40 11.0	[illegible]
13	4 59 38.46	[illegible]	26 41 41.6	[illegible]
14	5 1 52.31	[illegible]	26 43 4.4	[illegible]
15	5 4 6.26	[illegible]	26 44 19.4	[illegible]
16	5 6 20.30	[illegible]	26 45 26.5	[illegible]
17	5 8 34.43	[illegible]	26 46 25.7	[illegible]
18	5 10 48.64	[illegible]	26 47 17.0	[illegible]
19	5 13 2.93	[illegible]	26 48 0.4	[illegible]
20	5 15 17.30	[illegible]	26 48 35.8	[illegible]
21	5 17 31.74	[illegible]	26 49 3.3	[illegible]
22	5 19 46.25	[illegible]	26 49 22.9	[illegible]
23	5 22 0.81	[illegible]	N. 26 49 34.5	+ [illegible]
	TUESDAY, JUNE 1.			
0	5 24 15.43	[illegible]	N. 26 49 38.1	− [illegible]

PHASES OF THE MOON.

		d	h	m
●	New Moon . . . . May	1	8	46.3
☽	First Quarter	9	9	36.7
○	Full Moon	16	1	54.5
☾	Last Quarter	22	21	34.4
●	New Moon	31	0	25.6

		d	h
☾	Apogee . . . . May	1	19.4
☾	Perigee	15	19.2
☾	Apogee	28	22.8

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
3	Sun	W.	18 23 23	3602	19 41 55	3579	21 0 52	3561	22 20 9	3545
	Pollux	E.	50 29 4	3099	49 0 53	3098	47 32 41	3097	46 4 28	3097
	Mars	E.	50 34 18	3274	49 9 36	3272	47 44 52	3270	46 20 5	3268
	Regulus	E.	87 17 27	3071	85 48 42	3070	84 19 56	3068	82 51 7	3066
	Jupiter	E.	89 6 33	3083	87 38 3	3081	86 9 30	3079	84 40 55	3078
4	Sun	W.	29 0 19	3488	30 20 57	3478	31 41 46	3470	33 2 44	3461
	Pollux	E.	38 43 15	3095	37 14 59	3094	35 46 42	3094	34 18 25	3094
	Mars	E.	39 15 28	3253	37 50 22	3250	36 25 12	3246	34 59 57	3242
	Regulus	E.	75 26 18	3052	73 57 9	3048	72 27 56	3044	70 58 38	3041
	Jupiter	E.	77 17 19	3065	75 48 26	3060	74 19 28	3057	72 50 26	3054
5	Sun	W.	39 49 56	3420	41 11 50	3412	42 33 53	3403	43 56 6	3394
	Mars	E.	27 52 22	3217	26 26 33	3211	25 0 37	3205	23 34 34	3198
	Regulus	E.	63 30 50	3017	62 0 58	3011	60 30 59	3005	59 0 53	3000
	Jupiter	E.	65 24 1	3030	63 54 26	3026	62 24 45	3020	60 54 57	3014
	Spica	E.	117 34 3	3020	116 4 15	3014	114 34 19	3008	113 4 16	3001
6	Sun	W.	50 49 40	3350	52 12 54	3340	53 36 19	3330	54 59 56	3319
	Regulus	E.	51 28 24	2965	49 57 27	2958	48 26 21	2949	46 55 4	2941
	Jupiter	E.	53 24 2	2981	51 53 25	2973	50 22 39	2966	48 51 44	2958
	Spica	E.	105 31 55	2965	104 0 59	2958	102 29 53	2950	100 58 37	2940
7	Sun	W.	62 1 7	3264	63 26 1	3252	64 51 9	3240	66 16 31	3226
	Regulus	E.	39 15 54	2894	37 43 28	2884	36 10 49	2874	34 37 57	2864
	Jupiter	E.	41 14 26	2913	39 42 24	2903	38 10 9	2894	36 37 42	2884
	Spica	E.	93 19 20	2892	91 46 51	2882	90 14 9	2870	88 41 12	2859
8	Sun	W.	73 27 19	3158	74 54 18	3143	76 21 35	3129	77 49 10	3113
	Spica	E.	80 52 43	2798	79 18 13	2785	77 43 25	2771	76 8 19	2757
	Saturn	E.	116 33 58	2808	114 59 41	2794	113 25 5	2780	111 50 11	2765
9	Sun	W.	85 11 51	3033	86 41 23	3015	88 11 17	2998	89 41 32	2981
	Pollux	W.	23 31 33	2782	25 6 24	2755	26 41 51	2729	28 17 52	2704
	Mars	W.	19 25 23	2869	20 58 22	2852	22 31 42	2835	24 5 24	2818
	Spica	E.	68 8 10	2684	66 31 9	2669	64 53 47	2653	63 16 4	2638
	Saturn	E.	103 50 42	2689	102 13 47	2672	100 36 30	2657	98 58 52	2640
	Antares	E.	113 56 24	2678	112 19 15	2663	110 41 45	2646	109 3 53	2631
10	Sun	W.	97 18 21	2891	98 50 52	2872	100 23 47	2854	101 57 5	2835
	Pollux	W.	36 25 44	2596	38 4 46	2574	39 44 17	2553	41 24 16	2533
	Mars	W.	31 59 29	2731	33 35 28	2713	35 11 50	2695	36 48 36	2677
	Spica	E.	55 1 59	2555	53 22 2	2538	51 41 41	2520	50 0 56	2504
	Saturn	E.	90 45 2	2556	89 5 6	2539	87 24 47	2522	85 44 4	2504
	Antares	E.	100 49 1	2547	99 8 53	2530	97 28 21	2512	95 47 25	2494
11	Sun	W.	109 49 46	2740	111 25 33	2721	113 1 45	2702	114 38 22	2684
	Pollux	W.	49 51 10	2435	51 33 55	2415	53 17 8	2396	55 0 48	2377
	Mars	W.	44 58 40	2584	46 37 57	2566	48 17 39	2547	49 57 47	2529
	Spica	E.	41 31 13	2417	39 48 3	2401	38 4 29	2383	36 20 30	2367
	Saturn	E.	77 14 23	2417	75 31 13	2400	73 47 38	2383	72 3 39	2366
	Antares	E.	87 16 31	2405	85 33 4	2388	83 49 12	2370	82 4 54	2352

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
3	Sun	W.	23 30 43	[illegible]	24 59 33	[illegible]	26 19 36	[illegible]	27 39 52	[illegible]
	Pollux	E.	44 36 15	[illegible]	43 8 1	[illegible]	41 39 46	[illegible]	40 11 31	[illegible]
	Mars	E.	44 55 16	[illegible]	43 30 24	[illegible]	42 5 29	[illegible]	40 40 30	[illegible]
	Regulus	E.	81 22 16	[illegible]	79 53 22	[illegible]	78 24 24	[illegible]	76 55 23	[illegible]
	Jupiter	E.	83 12 18	[illegible]	81 43 38	[illegible]	80 14 55	[illegible]	78 46 9	[illegible]
4	Sun	W.	34 23 52	[illegible]	35 45 9	[illegible]	37 6 36	[illegible]	38 28 11	[illegible]
	Pollux	E.	32 50 8	[illegible]	31 21 52	[illegible]	29 53 38	[illegible]	28 25 25	[illegible]
	Mars	E.	33 34 37	[illegible]	32 9 12	[illegible]	30 43 41	[illegible]	29 18 5	[illegible]
	Regulus	E.	69 29 16	[illegible]	67 59 48	[illegible]	66 30 15	[illegible]	65 0 36	[illegible]
	Jupiter	E.	71 21 20	[illegible]	69 52 9	[illegible]	68 22 52	[illegible]	66 53 30	[illegible]
5	Sun	W.	45 18 29	[illegible]	46 41 1	[illegible]	48 3 44	[illegible]	49 26 37	[illegible]
	Mars	E.	22 8 23	[illegible]	20 42 4	[illegible]	19 15 37	[illegible]	17 49 1	[illegible]
	Regulus	E.	57 30 40	[illegible]	56 0 19	[illegible]	54 29 49	[illegible]	52 59 11	[illegible]
	Jupiter	E.	59 25 2	[illegible]	57 55 0	[illegible]	56 24 49	[illegible]	54 54 30	[illegible]
	Spica	E.	111 34 5	[illegible]	110 3 46	[illegible]	108 33 18	[illegible]	107 2 41	[illegible]
6	Sun	W.	56 23 45	[illegible]	57 47 46	[illegible]	59 12 0	[illegible]	60 36 27	[illegible]
	Regulus	E.	45 23 37	[illegible]	43 51 59	[illegible]	42 20 9	[illegible]	40 48 8	[illegible]
	Jupiter	E.	47 20 38	[illegible]	45 49 22	[illegible]	44 17 55	[illegible]	42 46 16	[illegible]
	Spica	E.	99 27 9	[illegible]	97 55 30	[illegible]	96 23 39	[illegible]	94 51 36	[illegible]
7	Sun	W.	67 42 9	[illegible]	69 8 2	[illegible]	70 34 11	[illegible]	72 0 37	[illegible]
	Regulus	E.	33 4 52	[illegible]	31 31 33	[illegible]	29 57 59	[illegible]	28 24 11	[illegible]
	Jupiter	E.	35 5 3	[illegible]	33 32 11	[illegible]	31 59 5	[illegible]	30 25 46	[illegible]
	Spica	E.	87 8 1	[illegible]	85 34 35	[illegible]	84 0 54	[illegible]	82 26 57	[illegible]
8	Sun	W.	79 17 4	[illegible]	80 45 16	[illegible]	82 13 48	[illegible]	83 42 39	[illegible]
	Spica	E.	74 32 55	[illegible]	72 57 13	[illegible]	71 21 11	[illegible]	69 44 50	[illegible]
	Saturn	E.	110 14 57	[illegible]	108 39 24	[illegible]	107 3 30	[illegible]	105 27 16	[illegible]
9	Sun	W.	91 12 9	[illegible]	92 43 8	[illegible]	94 14 29	[illegible]	95 46 13	[illegible]
	Pollux	W.	29 54 26	[illegible]	31 31 31	[illegible]	33 9 6	[illegible]	34 47 10	[illegible]
	Mars	W.	25 39 28	[illegible]	27 13 54	[illegible]	28 48 43	[illegible]	30 23 54	[illegible]
	Spica	E.	61 38 0	[illegible]	59 59 34	[illegible]	58 20 45	[illegible]	56 41 33	[illegible]
	Saturn	E.	97 20 51	[illegible]	95 42 25	[illegible]	94 3 42	[illegible]	92 24 34	[illegible]
	Antares	E.	107 25 40	[illegible]	105 47 4	[illegible]	104 8 6	[illegible]	102 28 45	[illegible]
10	Sun	W.	103 30 48	[illegible]	105 4 55	[illegible]	106 39 27	[illegible]	108 14 24	[illegible]
	Pollux	W.	43 4 44	[illegible]	44 45 39	[illegible]	46 27 2	[illegible]	48 8 52	[illegible]
	Mars	W.	38 25 47	[illegible]	40 3 22	[illegible]	41 41 23	[illegible]	43 19 40	[illegible]
	Spica	E.	48 19 48	[illegible]	46 38 16	[illegible]	44 56 19	[illegible]	43 13 58	[illegible]
	Saturn	E.	84 2 57	[illegible]	82 21 25	[illegible]	80 39 29	[illegible]	78 57 8	[illegible]
	Antares	E.	94 6 4	[illegible]	92 24 19	[illegible]	90 42 8	[illegible]	88 59 32	[illegible]
11	Sun	W.	116 15 24	[illegible]	117 52 51	[illegible]	119 30 43	[illegible]	121 9 0	[illegible]
	Pollux	W.	56 44 56	[illegible]	58 29 31	[illegible]	60 14 32	[illegible]	62 0 0	[illegible]
	Mars	W.	51 38 21	[illegible]	53 19 19	[illegible]	55 0 44	[illegible]	56 42 35	[illegible]
	Spica	E.	34 36 8	[illegible]	32 51 22	[illegible]	31 6 13	[illegible]	29 20 41	[illegible]
	Saturn	E.	70 19 15	[illegible]	68 34 27	[illegible]	66 49 14	[illegible]	65 3 38	[illegible]
	Antares	E.	80 20 10	[illegible]	78 35 0	[illegible]	76 49 25	[illegible]	75 3 24	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
12	Pollux	W.	63 45 54	2285	65 32 15	2268	67 19 1	2251	69 6 13	2233
	MARS	W.	58 24 51	2438	60 7 32	2419	61 50 39	2402	63 34 11	2385
	Regulus	W.	26 43 53	2277	28 30 26	2260	30 17 25	2241	32 4 51	2224
	JUPITER	W.	24 41 24	2312	26 27 6	2291	28 13 19	2271	30 0 1	2252
	SATURN	E.	63 17 38	2284	61 31 15	2268	59 44 29	2253	57 57 20	2239
	Antares	E.	73 16 57	2264	71 30 5	2247	69 42 48	2231	67 55 6	2214
13	Pollux	W.	78 8 24	2154	79 58 1	2139	81 48 0	2125	83 38 21	2112
	MARS	W.	72 17 50	2304	74 3 43	2289	75 49 58	2275	77 36 34	2261
	Regulus	W.	41 8 23	2142	42 58 18	2128	44 48 35	2113	46 39 14	2099
	JUPITER	W.	39 0 18	2166	40 49 37	2151	42 39 19	2136	44 29 24	2122
	Antares	E.	58 50 32	2136	57 0 28	2122	55 10 2	2107	53 19 14	2094
	α Aquilæ	E.	110 26 20	2854	108 53 2	2824	107 19 5	2796	105 44 32	2769
14	Pollux	W.	92 54 59	2052	94 47 12	2042	96 39 40	2033	98 32 23	2025
	MARS	W.	86 34 31	2200	88 22 59	2189	90 11 43	2179	92 0 42	2170
	Regulus	W.	55 57 30	2039	57 50 4	2028	59 42 54	2019	61 35 59	2010
	JUPITER	W.	53 44 55	2060	55 36 56	2049	57 29 14	2039	59 21 47	2031
	Antares	E.	44 0 21	2035	42 7 41	2025	40 14 45	2015	38 21 34	2007
	α Aquilæ	E.	97 44 1	2669	96 6 39	2654	94 28 57	2641	92 50 58	2630
15	MARS	W.	101 8 39	2136	102 58 43	2132	104 48 54	2128	106 39 11	2125
	Regulus	W.	71 4 28	1977	72 58 39	1972	74 52 58	1968	76 47 22	1965
	JUPITER	W.	68 47 38	1996	70 41 18	1992	72 35 5	1988	74 28 58	1986
	α Aquilæ	E.	84 38 11	2604	82 59 22	2605	81 20 34	2608	79 41 50	2612
	Fomalhaut	E.	109 24 48	2378	107 40 42	2366	105 56 18	2355	104 11 38	2345
16	Regulus	W.	86 20 6	1963	88 14 39	1965	90 9 8	1968	92 3 33	1972
	JUPITER	W.	83 59 3	1984	85 53 3	1986	87 47 0	1989	89 40 52	1992
	Spica	W.	32 19 45	1977	34 13 55	1977	36 8 5	1979	38 2 12	1981
	α Aquilæ	E.	71 30 50	2672	69 53 33	2692	68 16 42	2714	66 40 21	2740
	Fomalhaut	E.	95 25 45	2324	93 40 21	2324	91 54 57	2326	90 9 36	2331
	α Pegasi	E.	117 23 25	2175	115 34 20	2170	113 45 7	2167	111 55 49	2165
17	Regulus	W.	101 33 47	2001	103 27 19	2009	105 20 39	2018	107 13 45	2028
	JUPITER	W.	99 8 22	2023	101 1 21	2031	102 54 7	2040	104 46 39	2050
	Spica	W.	47 31 23	2007	49 24 46	2015	51 17 57	2023	53 10 55	2032
	α Aquilæ	E.	58 48 26	2919	57 16 31	2968	55 45 38	3021	54 15 51	3080
	Fomalhaut	E.	81 24 54	2371	79 40 37	[illegible]	77 56 38	2398	76 13 0	2414
	α Pegasi	E.	102 49 21	2176	101 0 17	2182	99 11 22	2188	97 22 37	2197
18	Spica	W.	62 31 49	2088	64 23 6	2102	66 14 2	2115	68 4 38	2130
	Antares	W.	16 40 7	2083	18 31 33	2096	20 22 39	2110	22 13 23	2124
	Fomalhaut	E.	67 41 15	2517	66 0 26	2544	64 20 14	2572	62 40 40	2602
	α Pegasi	E.	88 22 26	2252	86 35 16	2266	84 48 26	2281	83 1 58	2297
19	Spica	W.	77 11 58	2208	79 0 14	2225	80 48 5	2242	82 35 30	2259
	SATURN	W.	42 33 31	2250	44 20 44	[illegible]	46 7 38	2276	47 54 13	2289
	Antares	W.	31 21 25	2202	33 9 49	2219	34 57 48	2237	36 45 21	2253
	Fomalhaut	E.	54 34 5	2783	52 59 21	[illegible]	51 25 36	2862	49 52 54	2935
	α Pegasi	E.	74 15 49	2387	72 31 56	2405	70 48 33	2429	69 5 40	2451
	VENUS	E.	110 47 52	2208	108 59 37	2227	107 11 50	2246	105 24 31	2265

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
22	Pollux	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Mars	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Saturn	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Antares	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	Pollux	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Mars	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Antares	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Aquilae	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	Pollux	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Mars	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Antares	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Aquilae	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	Mars	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Aquilae	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Fomalhaut	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Saturn	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Aquilae	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Fomalhaut	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Pegasi	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Saturn	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Aquilae	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Fomalhaut	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Pegasi	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	Saturn	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Antares	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Fomalhaut	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Pegasi	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	Spica	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Saturn	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Antares	W.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Fomalhaut	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	α Pegasi	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Venus	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ' "		° ' "		° ' "		° ' "	
20	Spica	W.	91 26 5	2350	93 10 52	2368	94 55 12	2387	96 39 5	2405
	Saturn	W.	56 41 45	2368	58 26 6	2385	60 10 2	2402	61 53 34	2419
	Antares	W.	45 36 35	2345	47 21 29	2363	49 5 57	2382	50 49 58	2401
	α Pegasi	E.	60 39 23	2574	58 59 52	2601	57 20 59	2629	55 42 44	2658
	Venus	E.	96 35 2	2364	94 50 35	2384	93 6 38	2405	91 23 10	2426
	α Arietis	E.	102 21 42	2361	100 37 11	2380	98 53 7	2398	97 9 30	2417
	Sun	E.	125 46 11	2677	124 9 0	2696	122 32 15	2716	120 55 56	2735
21	Spica	W.	105 11 50	2500	106 53 3	2519	108 33 50	2538	110 14 11	2556
	Saturn	W.	70 25 3	2507	72 6 6	2525	73 46 44	2543	75 26 57	2561
	Antares	W.	59 23 20	2494	61 4 41	2513	62 45 36	2532	64 26 5	2550
	α Pegasi	E.	47 41 45	2823	46 7 47	2861	44 34 38	2902	43 2 20	2942
	Venus	E.	82 53 12	2530	81 12 40	2550	79 32 36	2571	77 53 1	2591
	α Arietis	E.	88 38 1	2510	86 57 2	2529	85 16 29	2548	83 36 22	2566
	Sun	E.	113 0 46	2833	111 27 1	2853	109 53 42	2873	108 20 48	2892
22	Saturn	W.	83 42 0	2649	85 19 49	2665	86 57 16	2682	88 34 20	2698
	Antares	W.	72 42 15	2640	74 20 16	2657	75 57 54	2674	77 35 9	2691
	Venus	E.	69 42 4	2692	68 5 14	2713	66 28 51	2732	64 52 54	2751
	α Arietis	E.	75 22 5	2657	73 44 27	2674	72 7 12	2692	70 30 21	2708
	Sun	E.	100 42 26	2987	99 11 57	3005	97 41 51	3024	96 12 8	3041
23	Saturn	W.	96 34 13	2779	98 9 9	2793	99 43 46	2808	101 18 3	2822
	Antares	W.	85 35 56	2770	87 11 3	2785	88 45 51	2799	90 20 20	2814
	α Aquilæ	W.	41 45 58	4500	42 49 50	4410	43 55 2	4333	45 1 24	4264
	Venus	E.	56 59 26	2845	55 25 57	2864	53 52 52	2882	52 20 10	2900
	α Arietis	E.	62 31 38	2790	60 56 57	2806	59 22 37	2821	57 48 37	2836
	Sun	E.	88 48 54	3127	87 21 17	3143	85 54 0	3159	84 27 1	3174
24	Antares	W.	98 8 17	2879	99 41 3	2891	101 13 33	2903	102 45 48	2914
	α Aquilæ	W.	50 47 20	4015	51 58 45	3979	53 10 45	3947	54 23 17	3919
	Venus	E.	44 42 15	2986	43 11 45	3003	41 41 36	3020	40 11 48	3036
	α Arietis	E.	50 3 18	2907	48 31 8	2920	46 59 15	2933	45 27 38	2946
	Sun	E.	77 16 36	3246	75 51 21	3259	74 26 21	3271	73 1 36	3283
25	α Aquilæ	W.	60 32 17	3814	61 47 5	3799	63 2 8	3786	64 17 25	3773
	α Arietis	E.	37 53 34	3008	36 23 31	3021	34 53 44	3033	33 24 12	3045
	Sun	E.	66 1 16	3339	64 37 50	3349	63 14 35	3359	61 51 32	3368
26	α Aquilæ	W.	70 36 38	3729	71 52 54	3723	73 9 17	3717	74 25 46	3712
	Fomalhaut	W.	45 19 50	3793	46 34 59	3762	47 50 41	3734	49 6 52	3708
	Sun	E.	54 58 43	3408	53 36 36	3415	52 14 36	3422	50 52 44	3429
27	α Aquilæ	W.	80 49 13	3697	82 6 3	3696	83 22 54	3695	84 39 46	3694
	Fomalhaut	W.	55 33 53	3610	56 52 16	3595	58 10 56	3581	59 29 51	3568
	α Pegasi	W.	33 3 8	3666	34 20 31	3625	35 38 38	3589	36 57 24	3556
	Sun	E.	44 5 6	3455	42 43 52	3460	41 22 43	3465	40 1 40	3470
28	α Aquilæ	W.	91 4 8	3698	92 20 57	3700	93 37 44	3702	94 54 29	3706
	Fomalhaut	W.	66 7 37	3516	67 27 43	3508	68 47 58	3500	70 8 22	3493
	α Pegasi	W.	43 38 59	3439	45 0 31	3422	46 22 23	3406	47 44 33	3392
	Sun	E.	33 17 35	3489	31 56 59	3494	30 36 28	3498	29 16 2	3503

GREENWICH MEAN TIME.

LUNAR DISTANCES

Day of the Month	Name and Direction of Object		Midnight	P. L. of Diff.	XV^h	P. L. of Diff.	XVIII^h	P. L. of Diff.	XXI^h	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
20	Spica	W.	98 22 32	[illegible]	100 5 31	[illegible]	101 48 4	[illegible]	103 30 10	[illegible]
	Saturn	W.	63 36 42	[illegible]	65 19 24	[illegible]	67 1 42	[illegible]	68 43 35	[illegible]
	Antares	W.	52 33 32	[illegible]	54 16 39	[illegible]	55 59 19	[illegible]	57 41 33	[illegible]
	α Pegasi	E.	54 5 8	[illegible]	52 38 13	[illegible]	50 52 0	[illegible]	49 16 30	[illegible]
	Venus	E.	89 40 12	[illegible]	87 57 43	[illegible]	86 15 44	[illegible]	84 34 13	[illegible]
	α Arietis	E.	95 26 19	[illegible]	93 43 35	[illegible]	92 1 17	[illegible]	90 19 26	[illegible]
	Sun	E.	119 20 2	[illegible]	117 44 34	[illegible]	116 9 32	[illegible]	114 34 56	[illegible]
21	Spica	W.	111 54 6	[illegible]	113 33 36	[illegible]	115 12 41	[illegible]	116 51 21	[illegible]
	Saturn	W.	77 6 46	[illegible]	78 46 11	[illegible]	80 25 11	[illegible]	82 3 47	[illegible]
	Antares	W.	66 6 9	[illegible]	67 45 47	[illegible]	69 25 1	[illegible]	71 3 50	[illegible]
	α Pegasi	E.	41 30 55	[illegible]	40 0 27	[illegible]	38 30 59	[illegible]	37 2 34	[illegible]
	Venus	E.	76 13 54	[illegible]	74 35 15	[illegible]	72 57 4	[illegible]	71 19 20	[illegible]
	α Arietis	E.	81 56 41	[illegible]	80 17 25	[illegible]	78 38 34	[illegible]	77 0 7	[illegible]
	Sun	E.	106 48 19	[illegible]	105 16 14	[illegible]	103 44 34	[illegible]	102 13 18	[illegible]
22	Saturn	W.	90 11 2	[illegible]	91 47 22	[illegible]	93 23 20	[illegible]	94 58 57	[illegible]
	Antares	W.	79 12 1	[illegible]	80 48 32	[illegible]	82 24 41	[illegible]	84 0 29	[illegible]
	Venus	E.	63 17 22	[illegible]	61 42 16	[illegible]	60 7 35	[illegible]	58 33 18	[illegible]
	α Arietis	E.	68 53 52	[illegible]	67 17 46	[illegible]	65 42 2	[illegible]	64 6 39	[illegible]
	Sun	E.	94 42 46	[illegible]	93 13 46	[illegible]	91 45 8	[illegible]	90 16 51	[illegible]
23	Saturn	W.	102 52 2	[illegible]	104 25 42	[illegible]	105 59 4	[illegible]	107 32 8	[illegible]
	Antares	W.	91 54 10	[illegible]	93 28 22	[illegible]	95 1 57	[illegible]	96 35 15	[illegible]
	α Aquilæ	W.	46 8 50	[illegible]	47 17 14	[illegible]	48 26 30	[illegible]	49 36 33	[illegible]
	Venus	E.	50 47 51	[illegible]	49 15 54	[illegible]	47 44 19	[illegible]	46 13 6	[illegible]
	α Arietis	E.	56 14 56	[illegible]	54 41 34	[illegible]	53 8 31	[illegible]	51 35 46	[illegible]
	Sun	E.	83 0 21	[illegible]	81 33 59	[illegible]	80 7 54	[illegible]	78 42 7	[illegible]
24	Antares	W.	104 17 [illegible]	[illegible]	105 49 36	[illegible]	107 21 10	[illegible]	108 52 31	[illegible]
	α Aquilæ	W.	55 36 18	[illegible]	56 49 45	[illegible]	58 3 55	[illegible]	59 17 [illegible]	[illegible]
	Venus	E.	38 42 20	[illegible]	37 13 14	[illegible]	35 44 28	[illegible]	34 16 4	[illegible]
	α Arietis	E.	43 56 18	[illegible]	42 25 14	[illegible]	40 54 25	[illegible]	39 23 52	[illegible]
	Sun	E.	71 37 5	[illegible]	70 12 48	[illegible]	68 48 45	[illegible]	67 24 54	[illegible]
25	α Aquilæ	W.	65 32 55	[illegible]	66 48 [illegible]	[illegible]	68 4 28	[illegible]	69 20 29	[illegible]
	α Arietis	E.	31 54 55	[illegible]	30 25 5	[illegible]	28 57 8	[illegible]	27 28 39	[illegible]
	Sun	E.	60 28 [illegible]	[illegible]	59 5 56	[illegible]	57 43 23	[illegible]	56 20 59	[illegible]
26	α Aquilæ	W.	75 42 20	[illegible]	76 58 [illegible]	[illegible]	78 15 40	[illegible]	79 32 25	[illegible]
	Fomalhaut	W.	50 23 31	[illegible]	51 40 34	[illegible]	52 58 0	[illegible]	54 15 47	[illegible]
	Sun	E.	49 31 0	[illegible]	48 9 22	[illegible]	46 47 51	[illegible]	45 26 26	[illegible]
27	α Aquilæ	W.	85 56 [illegible]	[illegible]	87 [illegible]	[illegible]	88 30 25	[illegible]	[illegible] 47 17	[illegible]
	Fomalhaut	W.	60 49 0	[illegible]	[illegible]	[illegible]	63 27 56	[illegible]	64 47 41	[illegible]
	α Pegasi	W.	[illegible] 46	[illegible]	[illegible]	[illegible]	40 57 1	[illegible]	42 17 48	[illegible]
	Sun	E.	[illegible] 42	[illegible]	[illegible]	[illegible]	35 57 0	[illegible]	34 35 15	[illegible]
28	α Aquilæ	W.	[illegible] 11 1	[illegible]	97 27 48	[illegible]	[illegible] 44 21	[illegible]	100 0 40	[illegible]
	Fomalhaut	W.	[illegible]	[illegible]	72 [illegible] 34	[illegible]	74 10 21	[illegible]	75 31 15	[illegible]
	α Pegasi	W.	[illegible]	[illegible]	[illegible] 41	[illegible]	51 52 37	[illegible]	53 15 47	[illegible]
	Sun	E.	27 55 41	[illegible]	26 35 28	[illegible]	25 15 16	[illegible]	23 55 13	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from / Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Tues.	1	4 38 31.98	10.243	N.22 8 0.2	+19.90	15 48.27	68.43	2 22.50	0.386
Wed.	2	4 42 38.02	10.259	22 15 46.3	18.94	15 48.14	68.49	2 13.05	0.401
Thur.	3	4 46 44.42	10.274	22 23 9.0	17.96	15 48.01	68.54	2 3.23	0.416
Frid.	4	4 50 51.18	10.288	22 30 8.2	+16.98	15 47.89	68.59	1 53.06	0.430
Sat.	5	4 54 58.25	10.301	22 36 43.8	15.99	15 47.78	68.64	1 42.58	0.443
SUN.	6	4 59 5.63	10.313	22 42 55.6	14.99	15 47.67	68.68	1 31.78	0.455
Mon.	7	5 3 13.30	10.325	22 48 43.4	+13.99	15 47.56	68.72	1 20.71	0.467
Tues.	8	5 7 21.23	10.335	22 54 7.3	12.99	15 47.46	68.76	1 9.37	0.477
Wed.	9	5 11 29.40	10.345	22 59 7.0	11.98	15 47.36	68.79	0 57.79	0.487
Thur.	10	5 15 37.79	10.354	23 3 42.5	+10.97	15 47.27	68.82	0 45.98	0.496
Frid.	11	5 19 46.39	10.362	23 7 53.7	9.96	15 47.18	68.85	0 33.98	0.504
Sat.	12	5 23 55.16	10.369	23 11 40.5	8.94	15 47.09	68.88	0 21.79	0.511
SUN.	13	5 28 4.11	10.376	23 15 2.8	+ 7.92	15 47.01	68.90	0 9.44	0.518
Mon.	14	5 32 13.20	10.381	23 18 0.5	6.89	15 46.93	68.92	0 3.06	0.523
Tues.	15	5 36 22.42	10.386	23 20 33.7	5.87	15 46.85	68.94	0 15.69	0.528
Wed.	16	5 40 31.75	10.390	23 22 42.2	+ 4.84	15 46.77	68.95	0 28.42	0.532
Thur.	17	5 44 41.17	10.394	23 24 25.9	3.81	15 46.70	68.96	0 41.25	0.536
Frid.	18	5 48 50.66	10.396	23 25 45.0	2.78	15 46.63	68.97	0 54.14	0.538
Sat.	19	5 53 0.20	10.398	23 26 39.2	+ 1.74	15 46.57	68.97	1 7.09	0.540
SUN.	20	5 57 9.77	10.399	23 27 8.7	+ 0.71	15 46.51	68.97	1 20.06	0.541
Mon.	21	6 1 19.35	10.399	23 27 13.3	− 0.33	15 46.45	68.97	1 33.05	0.541
Tues.	22	6 5 28.91	10.398	23 26 53.1	− 1.36	15 46.39	68.96	1 46.02	0.540
Wed.	23	6 9 38.43	10.396	23 26 8.1	2.39	15 46.34	68.95	1 58.95	0.538
Thur.	24	6 13 47.90	10.392	23 24 58.2	3.43	15 46.30	68.94	2 11.82	0.534
Frid.	25	6 17 57.27	10.388	23 23 23.6	− 4.46	15 46.26	68.92	2 24.60	0.530
Sat.	26	6 22 6.53	10.383	23 21 24.3	5.49	15 46.23	68.90	2 37.27	0.525
SUN.	27	6 26 15.66	10.377	23 19 0.2	6.52	15 46.20	68.88	2 49.80	0.519
Mon.	28	6 30 24.61	10.369	23 16 11.6	− 7.54	15 46.17	68.85	3 2.16	0.511
Tues.	29	6 34 33.38	10.361	23 12 58.4	8.56	15 46.15	68.82	3 14.33	0.503
Wed.	30	6 38 41.92	10.351	23 9 20.8	9.58	15 46.14	68.79	3 26.29	0.493
Thur.	31	6 42 50.22	10.340	N.23 5 18.8	−10.59	15 46.14	68.76	3 38.00	0.482

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.19 from the sidereal time.

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign − indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Tues.	1	4 38 32.39	10.242	N. 22 8 1.1	+19.90	2 22.49	0.386	4 40 54.88
Wed.	2	4 42 38.40	10.258	22 15 47.0	18.93	2 13.04	0.402	4 44 51.43
Thur.	3	4 46 44.78	10.273	22 23 9.6	17.95	2 3.21	0.416	4 48 47.99
Frid.	4	4 50 51.50	10.287	22 30 8.8	+16.97	1 53.05	0.429	4 52 44.55
Sat.	5	4 54 58.55	10.300	22 36 44.3	15.98	1 42.56	0.442	4 56 41.11
SUN.	6	4 59 5.90	10.312	22 42 56.0	14.99	1 31.77	0.455	5 0 37.67
Mon.	7	5 3 13.53	10.324	22 48 43.8	+13.99	1 20.70	0.467	5 4 34.23
Tues.	8	5 7 21.43	10.334	22 54 7.6	12.99	1 9.36	0.478	5 8 30.78
Wed.	9	5 11 29.56	10.344	22 59 7.2	11.98	0 57.78	0.487	5 12 27.34
Thur.	10	5 15 37.92	10.353	23 3 42.7	+10.97	0 45.98	0.496	5 16 23.90
Frid.	11	5 19 46.49	10.361	23 7 53.8	9.96	0 33.97	0.504	5 20 20.46
Sat.	12	5 23 55.23	10.368	23 11 40.5	8.94	0 21.79	0.511	5 24 17.02
SUN.	13	5 28 4.14	10.374	23 15 2.8	+7.92	0 9.44	0.518	5 28 13.58
Mon.	14	5 32 13.19	10.380	23 18 0.5	6.90	0 3.06	0.524	5 32 10.13
Tues.	15	5 36 22.38	10.385	23 20 33.7	5.87	0 15.69	0.528	5 36 6.69
Wed.	16	5 40 31.67	10.389	23 22 42.2	+4.84	0 28.42	0.532	5 40 3.25
Thur.	17	5 44 41.05	10.392	23 24 25.9	3.81	0 41.24	0.535	5 43 59.81
Frid.	18	5 48 50.51	10.395	23 25 45.0	2.78	0 54.14	0.538	5 47 56.37
Sat.	19	5 53 0.01	10.397	23 26 39.2	+1.74	1 7.08	0.540	5 51 52.93
SUN.	20	5 57 9.54	10.397	23 27 8.7	+0.71	1 20.05	0.541	5 55 49.49
Mon.	21	6 1 19.08	10.397	23 27 13.3	−0.33	1 33.04	0.541	5 59 46.04
Tues.	22	6 5 28.60	10.396	23 26 53.1	−1.36	1 46.00	0.539	6 3 42.60
Wed.	23	6 9 38.[illegible]	10.394	23 26 8.1	2.39	1 58.93	0.537	6 7 39.16
Thur.	24	6 13 47.52	10.391	23 24 58.4	3.43	2 11.80	0.534	6 11 35.72
Frid.	25	6 17 56.86	10.387	23 23 23.8	−4.46	2 24.58	0.530	6 15 32.28
Sat.	26	6 22 6.[illegible]	10.382	23 21 24.5	5.49	2 37.25	0.525	6 19 28.84
SUN.	27	6 26 15.[illegible]	10.375	23 19 0.5	6.51	2 49.75	0.519	6 23 25.39
Mon.	28	6 30 24.[illegible]	[illegible]	23 16 12.0	−7.53	3 2.14	0.512	6 27 21.95
Tues.	29	6 34 [illegible]	[illegible]	23 12 59.9	8.55	3 14.31	0.50[illegible]	6 31 18.51
Wed.	30	6 38 41.33	[illegible]	23 9 21.3	9.57	3 26.26	0.4[illegible]	6 35 15.[illegible]7
Thur.	31	6 42 49.[illegible]	[illegible]	N. 23 5 19.5	−10.58	3 37.97	0.482	6 39 11.63

Note.—The semidiameter for mean noon may be assumed the same as that for apparent noon.
The sign + prefixed to the hourly change of declination indicates that north declinations are increasing; the sign − [illegible] are decreasing.

Diff. for 1 H. [illegible]

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	152	71 12 0.6	11 27.2	143.70	+ 0.16	0.0062451	+25.3	19 15 55.24
2	153	72 9 28.9	8 55.3	143.65	+ 0.05	0.0063046	24.3	19 11 59.32
3	154	73 6 56.1	6 22.3	143.61	− 0.07	0.0063617	23.3	19 8 3.41
4	155	74 4 22.2	3 48.3	143.56	− 0.20	0.0064165	+22.3	19 4 7.50
5	156	75 1 47.1	1 13.0	143.52	0.33	0.0064690	21.4	19 0 11.59
6	157	75 59 11.0	58 36.7	143.47	0.46	0.0065194	20.6	18 56 15.68
7	158	76 56 33.8	55 59.3	143.43	− 0.58	0.0065679	+19.8	18 52 19.76
8	159	77 53 55.5	53 20.8	143.38	0.67	0.0066143	19.0	18 48 23.85
9	160	78 51 16.1	50 41.2	143.34	0.75	0.0066589	18.3	18 44 27.94
10	161	79 48 35.8	48 0.7	143.30	− 0.79	0.0067020	+17.6	18 40 32.02
11	162	80 45 54.6	45 19.4	143.26	0.81	0.0067435	17.0	18 36 36.11
12	163	81 43 12.4	42 37.0	143.23	0.79	0.0067834	16.4	18 32 40.20
13	164	82 40 29.5	39 53.9	143.20	− 0.74	0.0068219	+15.8	18 28 44.29
14	165	83 37 45.9	37 10.1	143.17	0.67	0.0068591	15.2	18 24 48.38
15	166	84 35 1.7	34 25.7	143.15	0.58	0.0068948	14.6	18 20 52.46
16	167	85 32 16.9	31 40.7	143.13	− 0.47	0.0069293	+14.0	18 16 56.55
17	168	86 29 31.8	28 55.4	143.11	0.34	0.0069623	13.4	18 13 0.64
18	169	87 26 46.3	26 9.7	143.10	0.21	0.0069939	12.8	18 9 4.72
19	170	88 24 0.4	23 23.7	143.09	− 0.07	0.0070239	+12.1	18 5 8.81
20	171	89 21 14.5	20 37.6	143.08	+ 0.05	0.0070522	11.4	18 1 12.90
21	172	90 18 28.3	17 51.2	143.08	0.16	0.0070789	10.7	17 57 16.99
22	173	91 15 42.1	15 4.8	143.07	+ 0.26	0.0071037	+ 9.9	17 53 21.08
23	174	92 12 55.8	12 18.3	143.07	0.32	0.0071264	9.0	17 49 25.16
24	175	93 10 9.5	9 31.8	143.07	0.35	0.0071468	8.1	17 45 29.25
25	176	94 7 23.2	6 45.3	143.07	+ 0.35	0.0071651	+ 7.1	17 41 33.34
26	177	95 4 36.9	3 58.8	143.07	0.33	0.0071809	6.1	17 37 37.42
27	178	96 1 50.6	1 12.3	143.07	0.27	0.0071942	5.0	17 33 41.51
28	179	96 59 4.1	58 25.7	143.07	+ 0.20	0.0072050	+ 3.9	17 29 45.60
29	180	97 56 17.7	55 39.1	143.06	+ 0.09	0.0072131	2.8	17 25 49.68
30	181	98 53 31.2	52 52.4	143.06	− 0.02	0.0072185	1.7	17 21 53.77
31	182	99 50 44.5	50 5.5	143.05	− 0.15	0.0072213	+ 0.7	17 17 57.86

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0d.0.

Diff. for 1 Hour, −9s.8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER. Noon.	SEMIDIAMETER. Midnight.	HORIZONTAL PARALLAX. Noon.	Diff. for 1 Hour.	HORIZONTAL PARALLAX. Midnight.	Diff. for 1 Hour.	UPPER TRANSIT. Meridian of Greenwich.	Diff. for 1 Hour.	AGE. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	14 50.7	14 53.1	54 22.2	+0.68	54 30.9	+0.78	0 44.9	2.16	1.0
2	14 55.8	14 58.8	54 40.8	0.88	54 51.9	0.98	1 36.7	2.13	2.0
3	15 2.1	15 5.9	55 4.2	1.08	55 17.8	1.18	2 27.8	2.10	3.0
4	15 9.9	15 14.3	55 32.6	+1.29	55 48.7	+1.40	3 17.3	2.03	4.0
5	15 19.0	15 24.1	56 6.1	1.50	56 24.7	1.60	4 5.1	1.96	5.0
6	15 29.5	15 35.2	56 44.5	1.70	57 5.5	1.79	4 51.4	1.91	6.0
7	15 41.2	15 47.4	57 27.5	+1.87	57 50.3	+1.90	5 37.0	1.90	7.0
8	15 53.7	16 0.1	58 13.6	1.95	58 37.1	1.93	6 23.0	1.94	8.0
9	16 6.5	16 12.7	59 0.5	1.93	59 23.3	1.85	7 10.7	2.04	9.0
10	16 18.6	16 24.0	59 45.0	+1.74	60 5.0	+1.57	8 1.6	2.20	10.0
11	16 28.9	16 32.9	60 22.7	1.36	60 37.6	1.10	8 56.8	2.41	11.0
12	16 36.1	16 38.2	60 49.2	0.80	60 56.9	+0.47	9 57.0	2.61	12.0
13	16 39.1	16 38.9	61 0.4	+0.11	60 59.5	−0.26	11 1.4	2.74	13.0
14	16 37.4	16 34.7	60 54.1	−0.63	60 44.3	1.00	12 7.6	2.75	14.0
15	16 30.9	16 26.1	60 30.2	1.33	60 12.4	1.62	13 12.1	2.61	15.0
16	16 20.3	16 13.9	59 51.4	−1.87	59 27.6	−2.07	14 12.1	2.39	16.0
17	16 6.8	15 59.4	59 1.7	2.21	58 34.5	2.30	15 6.7	2.16	17.0
18	15 51.8	15 44.2	58 6.6	2.33	57 38.5	2.33	15 56.0	1.97	18.0
19	15 36.6	15 29.3	57 10.8	−2.27	56 44.1	−2.17	16 41.4	1.83	19.0
20	15 22.4	15 16.0	56 18.7	2.05	55 55.0	1.89	17 24.2	1.74	20.0
21	15 10.1	15 4.8	55 33.3	1.72	55 13.8	1.53	18 5.6	1.72	21.0
22	15 0.1	14 56.1	54 56.6	−1.33	54 41.8	−1.13	18 46.9	1.74	22.0
23	14 52.7	14 50.0	54 29.4	0.93	54 19.4	0.73	19 29.2	1.79	23.0
24	14 47.9	14 46.5	54 11.9	0.53	54 6.8	−0.33	20 13.3	1.88	24.0
25	14 45.7	14 45.5	54 3.9	−0.15	54 3.1	+0.08	20 59.8	1.99	25.0
26	14 45.9	14 46.7	54 4.4	+0.29	54 7.6	0.33	21 48.8	2.09	26.0
27	14 48.0	14 49.8	54 12.4	0.47	54 18.8	0.59	22 39.8	2.16	27.0
28	14 51.9	14 54.4	54 26.6	+0.70	54 35.7	+0.80	23 31.8	2.17	28.0
29	14 57.2	15 0.2	54 45.9	0.89	54 57.0	0.97	6		29.0
30	15 3.5	15 7.0	55 9.1	1.04	55 21.9	1.10	0 23.7	2.24	0.4
31	15 10.6	15 14.5	55 35.4	+1.15	55 49.4	+1.19	1 14.3	2.07	1.4

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 1.					THURSDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	5 24 15.43	2.2441	N.26 49 38.1	−0.007	0	7 11 33.32	2.2003	N.24 16 42.0	6.281
1	5 26 30.10	2.2449	26 49 33.7	0.140	1	7 13 45.27	2.1979	24 10 21.5	6.403
2	5 28 44.82	2.2457	26 49 21.3	0.273	2	7 15 57.07	2.1955	24 3 53.7	6.525
3	5 30 59.58	2.2463	26 49 1.0	0.406	3	7 18 8.73	2.1931	23 57 18.5	6.647
4	5 33 14.38	2.2469	26 48 32.6	0.540	4	7 20 20.24	2.1906	23 50 36.1	6.767
5	5 35 29.21	2.2474	26 47 56.2	0.673	5	7 22 31.60	2.1881	23 43 46.5	6.887
6	5 37 44.07	2.2478	26 47 11.8	0.807	6	7 24 42.81	2.1855	23 36 49.6	7.007
7	5 39 58.95	2.2482	26 46 19.4	0.941	7	7 26 53.86	2.1828	23 29 45.6	7.126
8	5 42 13.85	2.2484	26 45 18.9	1.075	8	7 29 4.75	2.1802	23 22 34.5	7.243
9	5 44 28.76	2.2486	26 44 10.4	1.208	9	7 31 15.49	2.1776	23 15 16.4	7.361
10	5 46 43.68	2.2487	26 42 53.9	1.342	10	7 33 26.07	2.1750	23 7 51.2	7.479
11	5 48 58.60	2.2487	26 41 29.3	1.476	11	7 35 36.49	2.1723	23 0 19.0	7.596
12	5 51 13.53	2.2487	26 39 56.7	1.610	12	7 37 46.74	2.1695	22 52 39.7	7.712
13	5 53 28.45	2.2486	26 38 16.1	1.743	13	7 39 56.83	2.1668	22 44 53.5	7.827
14	5 55 43.36	2.2483	26 36 27.5	1.877	14	7 42 6.76	2.1640	22 37 0.5	7.941
15	5 57 58.25	2.2480	26 34 30.8	2.011	15	7 44 16.51	2.1611	22 29 0.6	8.055
16	6 0 13.12	2.2477	26 32 26.1	2.145	16	7 46 26.09	2.1583	22 20 53.9	8.167
17	6 2 27.97	2.2473	26 30 13.4	2.278	17	7 48 35.51	2.1556	22 12 40.5	8.280
18	6 4 42.79	2.2467	26 27 52.7	2.412	18	7 50 44.76	2.1528	22 4 20.3	8.392
19	6 6 57.57	2.2460	26 25 24.0	2.545	19	7 52 53.84	2.1499	21 55 53.4	8.503
20	6 9 12.31	2.2454	26 22 47.3	2.677	20	7 55 2.75	2.1470	21 47 19.9	8.613
21	6 11 27.02	2.2447	26 20 2.7	2.810	21	7 57 11.48	2.1441	21 38 39.8	8.723
22	6 13 41.68	2.2439	26 17 10.1	2.942	22	7 59 20.04	2.1412	21 29 53.1	8.832
23	6 15 56.29	2.2430	N.26 14 9.6	3.075	23	8 1 28.43	2.1384	N.21 20 59.9	8.940
	WEDNESDAY 2.					FRIDAY 4.			
0	6 18 10.84	2.2420	N.26 11 1.1	3.207	0	8 3 36.65	2.1355	N.21 12 0.3	9.048
1	6 20 25.33	2.2410	26 7 44.7	3.339	1	8 5 44.69	2.1326	21 2 54.2	9.155
2	6 22 39.76	2.2399	26 4 20.4	3.472	2	8 7 52.56	2.1297	20 53 41.7	9.261
3	6 24 54.12	2.2387	26 0 48.1	3.603	3	8 10 0.26	2.1269	20 44 22.9	9.366
4	6 27 8.41	2.2375	25 57 8.0	3.734	4	8 12 7.79	2.1240	20 34 57.8	9.470
5	6 29 22.62	2.2362	25 53 20.0	3.866	5	8 14 15.14	2.1211	20 25 26.5	9.574
6	6 31 36.75	2.2348	25 49 24.1	3.997	6	8 16 22.32	2.1182	20 15 48.9	9.678
7	6 33 50.80	2.2334	25 45 20.4	4.127	7	8 18 29.33	2.1153	20 6 5.1	9.780
8	6 36 4.76	2.2319	25 41 8.9	4.256	8	8 20 36.16	2.1124	19 56 15.3	9.881
9	6 38 18.63	2.2303	25 36 49.7	4.385	9	8 22 42.82	2.1096	19 46 19.4	9.982
10	6 40 32.40	2.2287	25 32 22.7	4.515	10	8 24 49.31	2.1067	19 36 17.5	10.082
11	6 42 46.07	2.2271	25 27 47.9	4.644	11	8 26 55.63	2.1039	19 26 9.6	10.181
12	6 44 59.65	2.2254	25 23 5.4	4.773	12	8 29 1.78	2.1011	19 15 55.8	10.279
13	6 47 13.12	2.2236	25 18 15.2	4.901	13	8 31 7.76	2.0983	19 5 36.1	10.377
14	6 49 26.48	2.2217	25 13 17.3	5.028	14	8 33 13.57	2.0955	18 55 10.6	10.473
15	6 51 39.72	2.2197	25 8 11.8	5.156	15	8 35 19.22	2.0927	18 44 39.3	10.569
16	6 53 52.85	2.2176	25 2 58.6	5.283	16	8 37 24.70	2.0900	18 34 2.3	10.665
17	6 56 5.86	2.2157	24 57 37.8	5.409	17	8 39 30.02	2.0872	18 23 19.5	10.760
18	6 58 18.74	2.2137	24 52 9.5	5.535	18	8 41 35.17	2.0845	18 12 31.1	10.853
19	7 0 31.50	2.2116	24 46 33.6	5.661	19	8 43 40.16	2.0818	18 1 37.1	10.946
20	7 2 44.13	2.2094	24 40 50.2	5.786	20	8 45 44.99	2.0792	17 50 37.6	11.037
21	7 4 56.63	2.2072	24 34 59.3	5.910	21	8 47 49.67	2.0767	17 39 32.6	11.128
22	7 7 9.00	2.2050	24 29 1.0	6.034	22	8 49 54.19	2.0740	17 28 22.2	11.218
23	7 9 21.23	2.2027	24 22 55.2	6.158	23	8 51 58.55	2.0713	17 17 6.4	11.308
24	7 11 33.32	2.2003	N.24 16 42.0	6.281	24	8 54 2.75	2.0687	N.17 5 45.2	11.397

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 5.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	8 54 2.75	[illegible]	N. 17 5 45.2	[illegible]
1	8 56 6.[illegible]	[illegible]	16 54 1[illegible] 7	11.6[illegible]
2	8 58 10.71	[illegible]	16 42 47.0	[illegible]
3	9 0 14.47	[illegible]	16 31 10.1	[illegible]
4	9 2 18.0[illegible]	[illegible]	16 19 2[illegible].1	[illegible]
5	9 4 21.55	[illegible]	16 7 41.0	11.8[illegible]
6	9 6 24.[illegible]7	[illegible]	15 55 4[illegible]	[illegible]
7	9 8 28.06	[illegible]	15 43 51.6	[illegible]
8	9 10 31.11	[illegible]	15 31 4[illegible].5	[illegible]
9	9 12 34.02	[illegible]	15 19 42.5	[illegible]
10	9 14 3[illegible]	[illegible]	15 7 [illegible]	[illegible]
11	9 16 [illegible].45	[illegible]	14 55 14.0	[illegible]
12	9 18 41.[illegible]	[illegible]	14 42 5[illegible].7	[illegible]
13	9 20 44.[illegible]	[illegible]	14 30 2[illegible].7	[illegible]
14	9 22 46.67	[illegible]	14 17 5[illegible].0	[illegible]
15	9 24 4[illegible]	[illegible]	14 5 20.7	[illegible]
16	9 26 5[illegible]	[illegible]	13 52 4[illegible]	[illegible]
17	9 28 52.[illegible]	[illegible]	13 39 5[illegible].6	[illegible]
18	9 30 54.64	[illegible]	13 27 [illegible].0	[illegible]
19	9 32 5[illegible].35	[illegible]	13 14 15.0	[illegible]
20	9 34 57.[illegible]	[illegible]	13 1 17.6	[illegible]
21	9 36 5[illegible].49	[illegible]	12 48 15.9	[illegible]
22	9 39 0.91	[illegible]	12 35 10.0	[illegible]
23	9 41 2.24	[illegible]	N. 12 21 5[illegible].9	[illegible]

SUNDAY 6.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	9 43 3.47	[illegible]	N. 12 8 45.8	13.[illegible]
1	9 45 4.[illegible]	[illegible]	11 55 27.6	[illegible]
2	9 47 5.[illegible]	[illegible]	11 42 [illegible]	[illegible]
3	9 49 6.[illegible]	[illegible]	11 2[illegible]	[illegible]
4	9 51 7.57	[illegible]	11 15 [illegible]	[illegible]
5	9 53 8.41	[illegible]	11 1 [illegible]	[illegible]
6	9 55 9.17	[illegible]	10 47 5[illegible].6	[illegible]
7	9 57 [illegible]	[illegible]	10 34 1[illegible].2	[illegible]
8	9 5[illegible] 10.51	[illegible]	10 20 31.1	[illegible]
9	10 1 11.[illegible]	[illegible]	10 6 42.4	[illegible]
10	10 3 11.62	[illegible]	9 52 [illegible]	[illegible]
11	10 5 12.10	[illegible]	9 5[illegible] [illegible].4	[illegible]
12	10 7 12.[illegible]	[illegible]	9 24 [illegible]	[illegible]
13	10 9 12.[illegible]	[illegible]	9 10 [illegible]	[illegible]
14	10 11 13.2[illegible]	[illegible]	8 5[illegible] [illegible]	[illegible]
15	10 13 13.[illegible]	[illegible]	8 42 [illegible]	[illegible]
16	10 15 1[illegible]	[illegible]	8 [illegible]	[illegible]
17	10 17 14.14	[illegible]	8 14 [illegible]	[illegible]
18	10 19 14.[illegible]	[illegible]	[illegible]	[illegible]
19	10 21 14.[illegible]	[illegible]	7 45 [illegible]	[illegible]
20	10 23 14.[illegible]	[illegible]	[illegible]	[illegible]
21	10 25 1[illegible]	[illegible]	[illegible]	[illegible]
22	10 27 1[illegible].22	[illegible]	[illegible]	[illegible]
23	10 29 1[illegible].42	[illegible]	6 4[illegible]	[illegible]
24	10 31 1[illegible]	[illegible]	N. 6 [illegible]	[illegible]

MONDAY 7.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	10 31 15.63	[illegible]	N. 6 32 54.6	14.[illegible]
1	10 33 15.[illegible]4	[illegible]	6 18 15.5	14.[illegible]
2	10 35 16.07	[illegible]	6 3 33.8	14.717
3	10 37 16.32	[illegible]	5 48 49.5	14.7[illegible]
4	10 39 16.59	[illegible]	5 34 2.7	[illegible]
5	10 41 16.[illegible]	[illegible]	5 19 13.3	[illegible]
6	10 43 17.22	[illegible]	5 4 21.5	[illegible]
7	10 45 17.59	[illegible]	4 49 27.3	[illegible]
8	10 47 18.[illegible]	[illegible]	4 34 30.9	[illegible]
9	10 49 18.46	[illegible]	4 19 32.3	[illegible]
10	10 51 18.97	[illegible]	4 4 31.5	[illegible]
11	10 53 19.54	[illegible]	3 49 28.5	[illegible]
12	10 55 20.16	[illegible]	3 34 23.5	[illegible]
13	10 57 20.[illegible]5	[illegible]	3 19 16.5	[illegible]
14	10 59 21.62	[illegible]	3 4 7.6	[illegible]
15	11 1 22.46	[illegible]	2 48 56.9	[illegible]
16	11 3 23.39	[illegible]	2 33 44.4	[illegible]
17	11 5 24.40	[illegible]	2 18 30.1	[illegible]
18	11 7 25.50	[illegible]	2 3 14.2	[illegible]
19	11 9 26.70	[illegible]	1 47 56.7	[illegible]
20	11 11 28.00	[illegible]	1 32 37.6	[illegible]
21	11 13 29.41	[illegible]	1 17 17.1	[illegible]
22	11 15 30.93	[illegible]	1 1 55.2	[illegible]
23	11 17 32.56	[illegible]	N. 0 46 32.0	[illegible]

TUESDAY 8.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	11 19 34.31	[illegible]	N. 0 31 7.5	[illegible]
1	11 21 36.19	[illegible]	0 15 41.8	[illegible]
2	11 23 3[illegible].20	[illegible]	N. 0 0 15.0	[illegible]
3	11 25 40.36	[illegible]	S. 0 15 12.8	[illegible]
4	11 27 42.66	[illegible]	0 30 41.6	[illegible]
5	11 29 45.11	[illegible]	0 46 11.4	[illegible]
6	11 31 47.71	[illegible]	1 1 42.0	[illegible]
7	11 33 5[illegible].47	[illegible]	1 17 13.4	[illegible]
8	11 35 53.39	[illegible]	1 32 45.4	[illegible]
9	11 37 5[illegible].4[illegible]	[illegible]	1 48 1[illegible].0	[illegible]
10	11 39 59.75	[illegible]	2 3 51.2	[illegible]
11	11 42 3.21	[illegible]	2 19 24.[illegible]	[illegible]
12	11 44 6.85	[illegible]	2 34 5[illegible].8	[illegible]
13	11 46 10.6[illegible]	[illegible]	2 50 33.1	[illegible]
14	11 48 14.[illegible]0	[illegible]	3 6 7.7	[illegible]
15	11 50 1[illegible]	[illegible]	3 21 42.4	[illegible]
16	11 52 2[illegible]	[illegible]	3 37 17.1	[illegible]
17	11 54 2[illegible]	[illegible]	3 52 51.9	[illegible]
18	11 5[illegible] [illegible]	[illegible]	4 8 26.6	[illegible]
19	11 5[illegible] 3[illegible]	[illegible]	4 24 1.1	[illegible]
20	12 0 43.29	[illegible]	4 39 35.4	[illegible]
21	12 2 4[illegible]	[illegible]	4 55 9.3	[illegible]
22	12 4 54.[illegible]5	[illegible]	5 10 42.5	[illegible]
23	12 7 0.[illegible]	[illegible]	5 26 15.8	[illegible]
24	12 9 [illegible]	[illegible]	S. 5 41 4[illegible].2	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 9.					**FRIDAY 11.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	12 9 6.98	2.1070	S. 5 41 48.2	15.534	0	13 56 44.51	2.4057	S. 17 24 32.3	13.052
1	12 11 13.53	2.1113	5 57 19.9	15.522	1	13 59 9.09	2.4135	17 37 32.5	12.954
2	12 13 20.34	2.1157	6 12 50.9	15.509	2	14 1 34.13	2.4213	17 50 26.8	12.854
3	12 15 27.42	2.1203	6 28 21.0	15.493	3	14 3 59.64	2.4291	18 3 15.0	12.751
4	12 17 34.78	2.1249	6 43 50.1	15.477	4	14 6 25.62	2.4368	18 15 56.9	12.646
5	12 19 42.41	2.1295	6 59 18.3	15.461	5	14 8 52.06	2.4446	18 28 32.5	12.539
6	12 21 50.32	2.1343	7 14 45.4	15.442	6	14 11 18.97	2.4524	18 41 1.6	12.430
7	12 23 58.52	2.1392	7 30 11.3	15.420	7	14 13 46.35	2.4603	18 53 24.1	12.318
8	12 26 7.02	2.1441	7 45 35.8	15.397	8	14 16 14.21	2.4682	19 5 39.8	12.204
9	12 28 15.81	2.1491	8 0 58.9	15.372	9	14 18 42.54	2.4761	19 17 48.6	12.088
10	12 30 24.91	2.1542	8 16 20.5	15.347	10	14 21 11.34	2.4839	19 29 50.4	11.971
11	12 32 34.32	2.1595	8 31 40.5	15.320	11	14 23 40.61	2.4918	19 41 45.1	11.851
12	12 34 44.05	2.1648	8 46 58.9	15.292	12	14 26 10.36	2.4997	19 53 32.5	11.729
13	12 36 54.10	2.1702	9 2 15.5	15.261	13	14 28 40.58	2.5076	20 5 12.6	11.605
14	12 39 4.47	2.1756	9 17 30.2	15.228	14	14 31 11.27	2.5154	20 16 45.1	11.478
15	12 41 15.17	2.1812	9 32 42.9	15.194	15	14 33 42.43	2.5232	20 28 10.0	11.350
16	12 43 26.21	2.1868	9 47 53.5	15.159	16	14 36 14.06	2.5311	20 39 27.1	11.219
17	12 45 37.59	2.1926	10 3 2.0	15.122	17	14 38 46.16	2.5389	20 50 36.3	11.087
18	12 47 49.32	2.1984	10 18 8.2	15.083	18	14 41 18.73	2.5467	21 1 37.5	10.952
19	12 50 1.40	2.2043	10 33 12.0	15.042	19	14 43 51.76	2.5544	21 12 30.5	10.815
20	12 52 13.84	2.2102	10 48 13.3	15.000	20	14 46 25.25	2.5621	21 23 15.3	10.677
21	12 54 26.63	2.2163	11 3 12.0	14.956	21	14 48 59.21	2.5698	21 33 51.7	10.535
22	12 56 39.79	2.2225	11 18 8.0	14.910	22	14 51 33.63	2.5774	21 44 19.5	10.392
23	12 58 53.33	2.2287	S. 11 33 1.2	14.862	23	14 54 8.50	2.5849	S. 21 54 38.7	10.247
	THURSDAY 10.					**SATURDAY 12.**			
0	13 1 7.24	2.2350	S. 11 47 51.5	14.813	0	14 56 43.82	2.5924	S. 22 4 49.1	10.099
1	13 3 21.53	2.2414	12 2 38.8	14.761	1	14 59 19.59	2.5999	22 14 50.6	9.949
2	13 5 36.21	2.2478	12 17 23.0	14.709	2	15 1 55.81	2.6073	22 24 43.0	9.797
3	13 7 51.27	2.2542	12 32 3.9	14.651	3	15 4 32.47	2.6147	22 34 26.3	9.644
4	13 10 6.72	2.2608	12 46 41.5	14.597	4	15 7 9.57	2.6220	22 44 0.3	9.489
5	13 12 22.57	2.2676	13 1 15.6	14.538	5	15 9 47.11	2.6292	22 53 25.0	9.332
6	13 14 38.83	2.2743	13 15 46.1	14.478	6	15 12 25.07	2.6363	23 2 40.2	9.172
7	13 16 55.49	2.2811	13 30 13.0	14.417	7	15 15 3.46	2.6433	23 11 45.7	9.011
8	13 19 12.56	2.2880	13 44 36.1	14.352	8	15 17 42.27	2.6502	23 20 41.5	8.848
9	13 21 30.05	2.2950	13 58 55.2	14.285	9	15 20 21.49	2.6571	23 29 27.5	8.684
10	13 23 47.96	2.3020	14 13 10.3	14.217	10	15 23 1.12	2.6638	23 38 3.6	8.517
11	13 26 6.29	2.3090	14 27 21.3	14.147	11	15 25 41.15	2.6704	23 46 29.5	8.347
12	13 28 25.04	2.3161	14 41 28.0	14.076	12	15 28 21.57	2.6769	23 54 45.2	8.176
13	13 30 44.22	2.3233	14 55 30.4	14.002	13	15 31 2.38	2.6834	24 2 50.6	8.004
14	13 33 3.84	2.3306	15 9 28.2	13.925	14	15 33 43.58	2.6897	24 10 45.7	7.831
15	13 35 23.89	2.3379	15 23 21.4	13.847	15	15 36 25.15	2.6959	24 18 30.3	7.655
16	13 37 44.38	2.3453	15 37 9.9	13.767	16	15 39 7.09	2.7020	24 26 4.3	7.477
17	13 40 5.32	2.3527	15 50 53.5	13.685	17	15 41 49.39	2.7080	24 33 27.5	7.297
18	13 42 26.70	2.3601	16 4 32.1	13.601	18	15 44 32.05	2.7138	24 40 39.9	7.116
19	13 44 48.53	2.3676	16 18 5.6	13.515	19	15 47 15.05	2.7194	24 47 41.4	6.933
20	13 47 10.81	2.3752	16 31 33.9	13.427	20	15 49 58.38	2.7249	24 54 31.9	6.750
21	13 49 33.55	2.3828	16 44 56.9	13.337	21	15 52 42.04	2.7303	25 1 11.4	6.565
22	13 51 56.75	2.3904	16 58 14.4	13.244	22	15 55 26.02	2.7356	25 7 39.7	6.378
23	13 54 20.40	2.3980	17 11 26.2	13.149	23	15 58 10.31	2.7406	25 13 56.7	6.189
24	13 56 44.51	2.4057	S. 17 24 32.3	13.052	24	16 0 54.89	2.7454	S. 25 20 2.4	5.999

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 13.

Hour	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ′ ″)	Diff. for 1 Minute
0	16 0 54.89	[illegible]	S. 25 20 2.4	[illegible]
1	16 3 39.76	[illegible]	25 25 56.0	[illegible]
2	16 6 24.92	[illegible]	25 31 19.4	[illegible]
3	16 9 10.34	[illegible]	25 37 10.6	[illegible]
4	16 11 56.02	[illegible]	25 42 30.1	[illegible]
5	16 14 41.95	[illegible]	25 47 [illegible]	[illegible]
6	16 17 28.12	[illegible]	25 52 [illegible]	[illegible]
7	16 20 14.51	[illegible]	25 57 17.9	[illegible]
8	16 23 1.12	[illegible]	26 1 50.1	[illegible]
9	16 25 47.93	[illegible]	26 6 10.3	[illegible]
10	16 28 [illegible]	[illegible]	26 10 15.5	[illegible]
11	16 31 [illegible]	[illegible]	26 14 14.0	[illegible]
12	16 34 9.46	[illegible]	26 17 58.5	[illegible]
13	16 36 56.96	[illegible]	26 21 30.2	[illegible]
14	16 39 44.61	[illegible]	26 24 [illegible]	[illegible]
15	16 42 32.39	[illegible]	26 27 57.0	[illegible]
16	16 45 20.[illegible]	[illegible]	26 30 52.0	[illegible]
17	16 48 8.29	[illegible]	26 33 34.6	[illegible]
18	16 50 56.[illegible]	[illegible]	26 36 4.8	[illegible]
19	16 53 44.[illegible]	[illegible]	26 38 22.6	[illegible]
20	16 56 32.[illegible]	[illegible]	26 40 [illegible]	[illegible]
21	16 59 21.10	[illegible]	26 42 21.0	[illegible]
22	17 2 9.43	[illegible]	26 44 1.5	[illegible]
23	17 4 57.79	[illegible]	S. 26 45 29.5	[illegible]

MONDAY 14.

Hour	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ′ ″)	Diff. for 1 Minute
0	17 7 46.17	[illegible]	S. 26 46 45.0	[illegible]
1	17 10 34.55	[illegible]	26 4[illegible] [illegible]	[illegible]
2	17 13 22.[illegible]	[illegible]	26 4[illegible] [illegible]	[illegible]
3	17 16 11.25	[illegible]	26 4[illegible] [illegible]	[illegible]
4	17 18 [illegible]	[illegible]	26 49 42.3	[illegible]
5	17 21 [illegible]	[illegible]	26 4[illegible] [illegible]	[illegible]
6	17 24 35.[illegible]	[illegible]	26 4[illegible] [illegible]	[illegible]
7	17 27 24.[illegible]	[illegible]	26 4[illegible] 44.5	[illegible]
8	17 30 12.[illegible]	[illegible]	26 4[illegible] [illegible]	[illegible]
9	17 33 [illegible]	[illegible]	26 48 [illegible]	[illegible]
10	17 35 47.[illegible]	[illegible]	26 47 54.[illegible]	[illegible]
11	17 38 35.41	[illegible]	26 46 [illegible]	[illegible]
12	17 41 22.[illegible]	[illegible]	26 45 [illegible]	[illegible]
13	17 44 10.27	[illegible]	26 44 14.4	[illegible]
14	17 46 57.45	[illegible]	26 42 [illegible]	[illegible]
15	17 4[illegible] 44.44	[illegible]	26 4[illegible] [illegible]	[illegible]
16	17 52 31.24	[illegible]	26 [illegible]	[illegible]
17	17 55 17.[illegible]	[illegible]	26 [illegible]	[illegible]
18	17 58 4.21	[illegible]	26 [illegible]	[illegible]
19	18 0 [illegible]	[illegible]	26 [illegible]	[illegible]
20	18 3 [illegible]	[illegible]	[illegible]	[illegible]
21	18 6 21.[illegible]	[illegible]	[illegible]	[illegible]
22	18 9 7.27	[illegible]	26 22 [illegible]	[illegible]
23	18 11 52.37	[illegible]	26 19 [illegible]	[illegible]
24	18 14 37.17	[illegible]	S. 26 15 14.6	[illegible]

TUESDAY 15.

Hour	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ′ ″)	Diff. for 1 Minute
0	18 14 37.17	[illegible]	S. 26 15 14.6	[illegible]
1	18 17 21.67	[illegible]	26 11 25.6	[illegible]
2	18 20 5.87	[illegible]	26 7 25.1	[illegible]
3	18 22 49.75	[illegible]	26 3 13.2	[illegible]
4	18 25 33.30	[illegible]	25 58 49.9	[illegible]
5	18 28 16.51	[illegible]	25 54 15.3	[illegible]
6	18 30 59.36	[illegible]	25 49 29.6	[illegible]
7	18 33 41.85	[illegible]	25 44 32.8	[illegible]
8	18 36 23.97	[illegible]	25 39 25.0	[illegible]
9	18 39 5.72	[illegible]	25 34 6.2	[illegible]
10	18 41 47.09	[illegible]	25 28 36.7	[illegible]
11	18 44 [illegible].05	[illegible]	25 22 56.5	[illegible]
12	18 47 8.60	[illegible]	25 17 5.6	[illegible]
13	18 49 48.74	[illegible]	25 11 4.2	[illegible]
14	18 52 28.47	[illegible]	25 4 52.4	[illegible]
15	18 55 7.77	[illegible]	24 58 30.3	[illegible]
16	18 57 46.63	[illegible]	24 51 58.0	[illegible]
17	19 0 25.06	[illegible]	24 45 15.6	[illegible]
18	19 3 3.04	[illegible]	24 38 23.2	[illegible]
19	19 5 40.56	[illegible]	24 31 20.9	[illegible]
20	19 8 17.62	[illegible]	24 24 8.9	[illegible]
21	19 10 54.22	[illegible]	24 16 47.2	[illegible]
22	19 13 30.35	[illegible]	24 9 16.0	[illegible]
23	19 16 6.09	[illegible]	S. 24 1 35.3	[illegible]

WEDNESDAY 16.

Hour	Right Ascension (h m s)	Diff. for 1 Minute	Declination (° ′ ″)	Diff. for 1 Minute
0	19 18 41.17	[illegible]	S. 23 53 45.3	[illegible]
1	19 21 15.86	[illegible]	23 45 46.1	[illegible]
2	19 23 50.05	[illegible]	23 37 37.9	[illegible]
3	19 26 23.75	[illegible]	23 29 20.7	[illegible]
4	19 28 56.95	[illegible]	23 20 54.7	[illegible]
5	19 31 29.65	[illegible]	23 12 20.0	[illegible]
6	19 34 1.85	[illegible]	23 3 36.6	[illegible]
7	19 36 33.54	[illegible]	22 54 44.8	[illegible]
8	19 39 4.72	[illegible]	22 45 44.6	[illegible]
9	19 41 35.35	[illegible]	22 36 36.2	[illegible]
10	19 44 5.53	[illegible]	22 27 19.7	[illegible]
11	19 46 35.16	[illegible]	22 17 55.2	[illegible]
12	19 49 4.27	[illegible]	22 8 [illegible].8	[illegible]
13	19 51 32.86	[illegible]	21 58 42.7	[illegible]
14	19 54 0.93	[illegible]	21 48 55.0	[illegible]
15	19 56 28.47	[illegible]	21 38 [illegible].7	[illegible]
16	19 58 55.49	[illegible]	21 28 [illegible].1	[illegible]
17	20 1 21.[illegible]	[illegible]	21 18 47.2	[illegible]
18	20 3 47.[illegible]	[illegible]	21 8 3[illegible].1	[illegible]
19	20 6 11.41	[illegible]	20 58 6.0	[illegible]
20	20 8 35.33	[illegible]	20 47 35.1	[illegible]
21	20 1[illegible] [illegible].73	[illegible]	20 36 57.4	[illegible]
22	20 13 26.60	[illegible]	20 26 13.0	[illegible]
23	20 15 49.95	[illegible]	20 15 22.1	[illegible]
24	20 18 12.[illegible]	[illegible]	S. 20 4 24.[illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 17.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	20 18 12.77	2.3760	S.20 4 24.8	11.008
1	20 20 35.07	2.3673	19 53 21.2	11.112
2	20 22 56.85	2.3587	19 42 11.4	11.213
3	20 25 18.11	2.3500	19 30 55.6	11.312
4	20 27 38.85	2.3414	19 19 33.9	11.410
5	20 29 59.08	2.3328	19 8 6.4	11.507
6	20 32 18.79	2.3242	18 56 33.1	11.601
7	20 34 37.99	2.3157	18 44 54.3	11.693
8	20 36 56.68	2.3072	18 33 10.0	11.783
9	20 39 14.86	2.2988	18 21 20.3	11.872
10	20 41 32.54	2.2904	18 9 25.4	11.958
11	20 43 49.71	2.2820	17 57 25.4	12.042
12	20 46 6.38	2.2737	17 45 20.4	12.125
13	20 48 22.56	2.2655	17 33 10.4	12.206
14	20 50 38.24	2.2573	17 20 55.7	12.284
15	20 52 53.43	2.2491	17 8 36.3	12.362
16	20 55 8.13	2.2410	16 56 12.3	12.437
17	20 57 22.35	2.2329	16 43 43.9	12.510
18	20 59 36.08	2.2248	16 31 11.1	12.582
19	21 1 49.33	2.2169	16 18 34.1	12.652
20	21 4 2.11	2.2091	16 5 52.9	12.720
21	21 6 14.43	2.2014	15 53 7.7	12.787
22	21 8 26.28	2.1937	15 40 18.5	12.852
23	21 10 37.67	2.1859	S.15 27 25.5	12.914

FRIDAY 18.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	21 12 48.59	2.1782	S.15 14 28.8	12.975
1	21 14 59.06	2.1707	15 1 28.5	13.035
2	21 17 9.08	2.1633	14 48 24.6	13.093
3	21 19 18.66	2.1559	14 35 17.3	13.149
4	21 21 27.79	2.1486	14 22 6.7	13.204
5	21 23 36.49	2.1413	14 8 52.8	13.258
6	21 25 44.75	2.1341	13 55 35.7	13.310
7	21 27 52.58	2.1270	13 42 15.6	13.360
8	21 29 59.99	2.1200	13 28 52.5	13.408
9	21 32 6.98	2.1131	13 15 26.6	13.455
10	21 34 13.56	2.1062	13 1 57.9	13.501
11	21 36 19.73	2.0994	12 48 26.5	13.545
12	21 38 25.49	2.0927	12 34 52.5	13.587
13	21 40 30.85	2.0861	12 21 16.0	13.628
14	21 42 35.82	2.0796	12 7 37.1	13.668
15	21 44 40.40	2.0731	11 53 55.8	13.707
16	21 46 44.59	2.0667	11 40 12.3	13.743
17	21 48 48.41	2.0605	11 26 26.6	13.778
18	21 50 51.85	2.0543	11 12 38.9	13.812
19	21 52 54.92	2.0482	10 58 49.2	13.845
20	21 54 57.63	2.0421	10 44 57.5	13.877
21	21 56 59.97	2.0361	10 31 4.0	13.907
22	21 59 1.96	2.0302	10 17 8.7	13.936
23	22 1 3.60	2.0244	10 3 11.7	13.963
24	22 3 4.89	2.0187	S. 9 49 13.1	13.989

SATURDAY 19.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	22 3 4.89	2.0187	S. 9 49 13.1	13.989
1	22 5 5.85	2.0132	9 35 13.0	14.014
2	22 7 6.48	2.0077	9 21 11.4	14.038
3	22 9 6.77	2.0022	9 7 8.4	14.061
4	22 11 6.74	1.9968	8 53 4.1	14.082
5	22 13 6.39	1.9916	8 38 58.6	14.101
6	22 15 5.73	1.9864	8 24 52.0	14.119
7	22 17 4.76	1.9813	8 10 44.3	14.137
8	22 19 3.49	1.9763	7 56 35.5	14.154
9	22 21 1.92	1.9714	7 42 25.8	14.169
10	22 23 0.06	1.9667	7 28 15.2	14.184
11	22 24 57.92	1.9619	7 14 3.7	14.197
12	22 26 55.49	1.9572	6 59 51.5	14.209
13	22 28 52.78	1.9527	6 45 38.6	14.220
14	22 30 49.81	1.9482	6 31 25.1	14.230
15	22 32 46.57	1.9438	6 17 11.0	14.239
16	22 34 43.07	1.9395	6 2 56.4	14.247
17	22 36 39.31	1.9353	5 48 41.4	14.253
18	22 38 35.31	1.9312	5 34 26.1	14.258
19	22 40 31.06	1.9272	5 20 10.5	14.263
20	22 42 26.57	1.9233	5 5 54.6	14.268
21	22 44 21.85	1.9194	4 51 38.4	14.271
22	22 46 16.90	1.9157	4 37 22.1	14.272
23	22 48 11.73	1.9120	S. 4 23 5.8	14.272

SUNDAY 20.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	22 50 6.34	1.9084	S. 4 8 49.5	14.271
1	22 52 0.74	1.9049	3 54 33.3	14.270
2	22 53 54.93	1.9014	3 40 17.1	14.269
3	22 55 48.91	1.8981	3 26 1.0	14.267
4	22 57 42.70	1.8948	3 11 45.1	14.263
5	22 59 36.29	1.8917	2 57 29.5	14.257
6	23 1 29.70	1.8886	2 43 14.3	14.250
7	23 3 22.92	1.8856	2 28 59.5	14.244
8	23 5 15.97	1.8827	2 14 45.0	14.237
9	23 7 8.85	1.8799	2 0 31.0	14.229
10	23 9 1.56	1.8772	1 46 17.5	14.220
11	23 10 54.11	1.8745	1 32 4.6	14.210
12	23 12 46.50	1.8719	1 17 52.3	14.199
13	23 14 38.74	1.8695	1 3 40.7	14.187
14	23 16 30.84	1.8671	0 49 29.8	14.175
15	23 18 22.79	1.8647	0 35 19.7	14.162
16	23 20 14.60	1.8625	0 21 10.4	14.148
17	23 22 6.29	1.8604	S. 0 7 2.0	14.133
18	23 23 57.85	1.8583	N. 0 7 5.5	14.117
19	23 25 49.29	1.8563	0 21 12.0	14.100
20	23 27 40.61	1.8544	0 35 17.5	14.083
21	23 29 31.82	1.8527	0 49 22.0	14.066
22	23 31 22.93	1.8509	1 3 25.4	14.047
23	23 33 13.93	1.8492	1 17 27.6	14.027
24	23 35 4.83	1.8476	N. 1 31 28.7	14.007

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 21.

Hour	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	23 35 4.83	[illegible]	N. 1 31 28.7	[illegible]
1	23 36 55.64	[illegible]	1 45 28.5	[illegible]
2	23 38 46.37	[illegible]	1 59 27.0	[illegible]
3	23 40 37.01	[illegible]	2 13 24.2	[illegible]
4	23 42 27.58	[illegible]	2 27 20.1	[illegible]
5	23 44 18.07	[illegible]	2 41 14.5	[illegible]
6	23 46 8.49	[illegible]	2 55 7.5	[illegible]
7	23 47 58.85	[illegible]	3 8 59.0	[illegible]
8	23 49 49.15	[illegible]	3 22 48.9	[illegible]
9	23 51 39.39	[illegible]	3 36 37.3	[illegible]
10	23 53 29.59	[illegible]	3 50 24.0	[illegible]
11	23 55 19.74	[illegible]	4 4 9.0	[illegible]
12	23 57 9.85	[illegible]	4 17 52.4	[illegible]
13	23 58 59.93	[illegible]	4 31 34.0	[illegible]
14	0 0 49.98	[illegible]	4 45 13.8	[illegible]
15	0 2 39.99	[illegible]	4 58 51.8	[illegible]
16	0 4 29.98	[illegible]	5 12 27.9	[illegible]
17	0 6 19.96	[illegible]	5 26 2.1	[illegible]
18	0 8 9.92	[illegible]	5 39 34.4	[illegible]
19	0 9 59.88	[illegible]	5 53 4.7	[illegible]
20	0 11 49.83	[illegible]	6 6 32.9	[illegible]
21	0 13 39.78	[illegible]	6 19 59.0	[illegible]
22	0 15 29.74	[illegible]	6 33 23.0	[illegible]
23	0 17 19.70	[illegible]	N. 6 46 44.9	[illegible]

TUESDAY 22.

Hour	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	0 19 9.67	[illegible]	N. 7 0 4.6	[illegible]
1	0 20 59.66	[illegible]	7 13 22.0	[illegible]
2	0 22 49.68	[illegible]	7 26 37.2	[illegible]
3	0 24 39.72	[illegible]	7 39 50.1	[illegible]
4	0 26 29.79	[illegible]	7 53 0.7	[illegible]
5	0 28 19.89	[illegible]	8 6 8.8	[illegible]
6	0 30 10.03	[illegible]	8 19 14.5	[illegible]
7	0 32 0.22	[illegible]	8 32 17.7	[illegible]
8	0 33 50.45	[illegible]	8 45 18.4	[illegible]
9	0 35 40.73	[illegible]	8 58 16.6	[illegible]
10	0 37 31.07	[illegible]	9 11 12.2	[illegible]
11	0 39 21.47	[illegible]	9 24 5.2	[illegible]
12	0 41 11.93	[illegible]	9 36 55.5	[illegible]
13	0 43 2.46	[illegible]	9 49 43.1	[illegible]
14	0 44 53.06	[illegible]	10 2 27.9	[illegible]
15	0 46 43.71	[illegible]	10 15 10.1	[illegible]
16	0 48 34.48	[illegible]	10 27 49.3	[illegible]
17	0 50 25.28	[illegible]	10 40 25.7	[illegible]
18	0 52 16.24	[illegible]	10 52 59.2	[illegible]
19	0 54 7.25	[illegible]	11 5 29.8	[illegible]
20	0 55 58.36	[illegible]	11 17 57.4	[illegible]
21	0 57 49.56	[illegible]	11 30 22.0	[illegible]
22	0 59 40.85	[illegible]	11 42 43.5	[illegible]
23	1 1 32.27	[illegible]	11 55 1.[illegible]	[illegible]
24	1 3 23.79	[illegible]	N. 12 7 17.2	[illegible]

WEDNESDAY 23.

Hour	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	1 3 23.79	[illegible]	N. 12 7 17.2	[illegible]
1	1 5 15.42	[illegible]	12 19 29.3	[illegible]
2	1 7 7.17	[illegible]	12 31 38.2	[illegible]
3	1 8 59.04	[illegible]	12 43 43.9	[illegible]
4	1 10 51.03	[illegible]	12 55 46.3	[illegible]
5	1 12 43.15	[illegible]	13 7 45.3	[illegible]
6	1 14 35.39	[illegible]	13 19 40.9	[illegible]
7	1 16 27.77	[illegible]	13 31 33.1	[illegible]
8	1 18 20.29	[illegible]	13 43 21.9	[illegible]
9	1 20 12.94	[illegible]	13 55 7.8	[illegible]
10	1 22 5.74	[illegible]	14 6 48.9	[illegible]
11	1 23 58.69	[illegible]	14 18 27.1	[illegible]
12	1 25 51.79	[illegible]	14 30 1.7	[illegible]
13	1 27 45.04	[illegible]	14 41 32.6	[illegible]
14	1 29 38.45	[illegible]	14 52 59.8	[illegible]
15	1 31 32.02	[illegible]	15 4 23.3	[illegible]
16	1 33 25.75	[illegible]	15 15 43.0	[illegible]
17	1 35 19.65	[illegible]	15 26 58.8	[illegible]
18	1 37 13.71	[illegible]	15 38 10.8	[illegible]
19	1 39 7.94	[illegible]	15 49 18.9	[illegible]
20	1 41 2.35	[illegible]	16 0 23.0	[illegible]
21	1 42 56.94	[illegible]	16 11 23.1	[illegible]
22	1 44 51.71	[illegible]	16 22 19.2	[illegible]
23	1 46 46.66	[illegible]	N. 16 33 11.2	[illegible]

THURSDAY 24.

Hour	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	1 48 41.79	[illegible]	N. 16 43 59.1	[illegible]
1	1 50 37.11	[illegible]	16 54 42.8	[illegible]
2	1 52 32.62	[illegible]	17 5 22.3	[illegible]
3	1 54 28.33	[illegible]	17 15 57.6	[illegible]
4	1 56 24.23	[illegible]	17 26 28.6	[illegible]
5	1 58 20.33	[illegible]	17 36 55.2	[illegible]
6	2 0 16.63	[illegible]	17 47 17.5	[illegible]
7	2 2 13.13	[illegible]	17 57 35.4	[illegible]
8	2 4 9.84	[illegible]	18 7 48.8	[illegible]
9	2 6 6.75	[illegible]	18 17 57.6	[illegible]
10	2 8 3.87	[illegible]	18 28 1.9	[illegible]
11	2 10 1.21	[illegible]	18 38 1.6	[illegible]
12	2 11 58.76	[illegible]	18 47 56.7	[illegible]
13	2 13 56.53	[illegible]	18 57 47.1	[illegible]
14	2 15 54.51	[illegible]	19 7 32.7	[illegible]
15	2 17 52.71	[illegible]	19 17 13.6	[illegible]
16	2 19 51.13	[illegible]	19 26 49.6	[illegible]
17	2 21 49.77	[illegible]	19 36 20.7	[illegible]
18	2 23 48.64	[illegible]	19 45 47.0	[illegible]
19	2 25 47.73	[illegible]	19 55 8.3	[illegible]
20	2 27 47.05	[illegible]	20 4 24.6	[illegible]
21	2 29 46.60	[illegible]	20 13 35.8	[illegible]
22	2 31 46.38	[illegible]	20 22 41.[illegible]	[illegible]
23	2 33 46.39	[illegible]	20 31 42.[illegible]	[illegible]
24	2 35 46.64	[illegible]	N. 20 40 38.7	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 25.					**SUNDAY 27.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	2 35 46.64	2.0061	N.20 40 38.7	8.887	0	4 16 36.19	2.1892	N.25 52 40.7	3.833
1	2 37 47.12	2.0099	20 49 29.3	8.799	1	4 18 47.64	2.1923	25 56 27.0	3.711
2	2 39 47.83	2.0138	20 58 14.6	8.710	2	4 20 59.27	2.1954	26 0 6.0	3.588
3	2 41 48.78	2.0178	21 6 54.5	8.621	3	4 23 11.09	2.1985	26 3 37.6	3.465
4	2 43 49.97	2.0218	21 15 29.1	8.532	4	4 25 23.09	2.2015	26 7 1.8	3.341
5	2 45 51.40	2.0257	21 23 58.3	8.441	5	4 27 35.27	2.2044	26 10 18.5	3.216
6	2 47 53.06	2.0297	21 32 22.0	8.349	6	4 29 47.62	2.2072	26 13 27.7	3.091
7	2 49 54.96	2.0337	21 40 40.2	8.257	7	4 32 0.14	2.2100	26 16 29.4	2.965
8	2 51 57.10	2.0377	21 48 52.8	8.164	8	4 34 12.82	2.2128	26 19 23.5	2.839
9	2 53 59.49	2.0418	21 56 59.9	8.071	9	4 36 25.67	2.2155	26 22 10.1	2.713
10	2 56 2.12	2.0458	22 5 1.3	7.976	10	4 38 38.68	2.2181	26 24 49.1	2.586
11	2 58 4.98	2.0498	22 12 57.0	7.880	11	4 40 51.84	2.2206	26 27 20.4	2.458
12	3 0 8.09	2.0538	22 20 46.9	7.784	12	4 43 5.15	2.2231	26 29 44.0	2.329
13	3 2 11.44	2.0579	22 28 31.1	7.687	13	4 45 18.61	2.2255	26 31 59.9	2.201
14	3 4 15.04	2.0619	22 36 9.4	7.589	14	4 47 32.21	2.2279	26 34 8.1	2.072
15	3 6 18.87	2.0658	22 43 41.8	7.491	15	4 49 45.96	2.2302	26 36 8.6	1.943
16	3 8 22.94	2.0699	22 51 8.3	7.392	16	4 51 59.84	2.2324	26 38 1.3	1.813
17	3 10 27.26	2.0740	22 58 28.8	7.292	17	4 54 13.85	2.2345	26 39 46.1	1.682
18	3 12 31.82	2.0780	23 5 43.4	7.192	18	4 56 27.98	2.2366	26 41 23.1	1.551
19	3 14 36.62	2.0820	23 12 51.9	7.090	19	4 58 42.24	2.2386	26 42 52.2	1.420
20	3 16 41.66	2.0860	23 19 54.2	6.988	20	5 0 56.61	2.2405	26 44 13.5	1.289
21	3 18 46.94	2.0900	23 26 50.4	6.885	21	5 3 11.10	2.2424	26 45 26.9	1.157
22	3 20 52.46	2.0940	23 33 40.4	6.781	22	5 5 25.70	2.2442	26 46 32.4	1.025
23	3 22 58.22	2.0980	N.23 40 24.1	6.677	23	5 7 40.40	2.2459	N.26 47 29.9	0.892
	SATURDAY 26.					**MONDAY 28.**			
0	3 25 4.22	2.1020	N.23 47 1.6	6.572	0	5 9 55.21	2.2476	N.26 48 19.5	0.760
1	3 27 10.46	2.1059	23 53 32.8	6.466	1	5 12 10.11	2.2491	26 49 1.1	0.627
2	3 29 16.93	2.1098	23 59 57.5	6.358	2	5 14 25.10	2.2505	26 49 34.7	0.493
3	3 31 23.64	2.1138	24 6 15.8	6.251	3	5 16 40.17	2.2519	26 50 0.3	0.360
4	3 33 30.58	2.1177	24 12 27.7	6.143	4	5 18 55.33	2.2532	26 50 17.9	0.226
5	3 35 37.76	2.1216	24 18 33.0	6.034	5	5 21 10.56	2.2544	26 50 27.4	+ 0.092
6	3 37 45.17	2.1254	24 24 31.8	5.925	6	5 23 25.86	2.2556	26 50 28.9	− 0.042
7	3 39 52.81	2.1292	24 30 24.0	5.814	7	5 25 41.23	2.2567	26 50 22.3	0.177
8	3 42 0.68	2.1330	24 36 9.5	5.702	8	5 27 56.66	2.2577	26 50 7.6	0.312
9	3 44 8.77	2.1368	24 41 48.4	5.590	9	5 30 12.15	2.2586	26 49 44.9	0.446
10	3 46 17.09	2.1406	24 47 20.5	5.478	10	5 32 27.69	2.2594	26 49 14.1	0.581
11	3 48 25.64	2.1443	24 52 45.8	5.366	11	5 34 43.28	2.2602	26 48 35.2	0.717
12	3 50 34.41	2.1480	24 58 4.4	5.252	12	5 36 58.92	2.2609	26 47 48.1	0.852
13	3 52 43.40	2.1517	25 3 16.1	5.137	13	5 39 14.59	2.2614	26 46 52.9	0.987
14	3 54 52.61	2.1553	25 8 20.9	5.022	14	5 41 30.29	2.2619	26 45 49.6	1.122
15	3 57 2.03	2.1588	25 13 18.7	4.906	15	5 43 46.02	2.2623	26 44 38.2	1.257
16	3 59 11.67	2.1624	25 18 9.6	4.790	16	5 46 1.77	2.2627	26 43 18.7	1.393
17	4 1 21.52	2.1659	25 22 53.5	4.672	17	5 48 17.54	2.2630	26 41 51.0	1.529
18	4 3 31.58	2.1693	25 27 30.3	4.554	18	5 50 33.33	2.2632	26 40 15.2	1.665
19	4 5 41.85	2.1728	25 32 0.0	4.436	19	5 52 49.12	2.2632	26 38 31.2	1.801
20	4 7 52.32	2.1762	25 36 22.6	4.317	20	5 55 4.91	2.2632	26 36 39.1	1.936
21	4 10 2.99	2.1795	25 40 38.0	4.197	21	5 57 20.71	2.2632	26 34 35.9	2.071
22	4 12 13.86	2.1828	25 44 46.2	4.076	22	5 59 36.50	2.2630	26 32 30.6	2.207
23	4 14 24.93	2.1861	25 48 47.1	3.954	23	6 1 52.27	2.2628	26 30 14.1	2.342
24	4 16 36.19	2.1892	N.25 52 40.7	3.833	24	6 4 8.03	2.2625	N.26 27 49.5	2.477

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 29.			
	h m s	s	° ′ ″	″
0	6 4 8.03	[illegible]	N 26 27 49.5	[illegible]
1	6 6 23.77	[illegible]	26 25 16.8	[illegible]
2	6 8 39.48	[illegible]	26 22 36.0	[illegible]
3	6 10 55.16	[illegible]	26 19 47.1	[illegible]
4	6 13 10.80	[illegible]	26 16 50.1	[illegible]
5	6 15 26.41	[illegible]	26 13 45.0	[illegible]
6	6 17 41.98	[illegible]	26 10 31.8	[illegible]
7	6 19 57.50	[illegible]	26 7 10.6	[illegible]
8	6 22 12.96	[illegible]	26 3 41.3	[illegible]
9	6 24 28.36	[illegible]	26 0 4.0	[illegible]
10	6 26 43.70	[illegible]	25 56 18.7	[illegible]
11	6 28 58.97	[illegible]	25 52 25.4	[illegible]
12	6 31 14.17	[illegible]	25 48 24.0	[illegible]
13	6 33 29.30	[illegible]	25 44 14.7	[illegible]
14	6 35 44.34	[illegible]	25 39 57.5	[illegible]
15	6 37 59.30	[illegible]	25 35 32.3	[illegible]
16	6 40 14.17	[illegible]	25 30 59.2	[illegible]
17	6 42 [illegible].95	[illegible]	25 26 18.2	[illegible]
18	6 44 43.64	[illegible]	25 21 29.4	[illegible]
19	6 46 58.23	[illegible]	25 16 32.8	[illegible]
20	6 49 12.71	[illegible]	25 11 28.3	[illegible]
21	6 51 27.08	[illegible]	25 6 16.0	[illegible]
22	6 53 41.34	[illegible]	25 0 56.0	[illegible]
23	6 55 55.49	[illegible]	N 24 55 28.2	[illegible]
	WEDNESDAY 30.			
0	6 58 9.52	[illegible]	N 24 49 52.7	[illegible]
1	7 0 23.43	[illegible]	24 44 9.6	[illegible]
2	7 2 37.22	[illegible]	24 39 18.[illegible]	[illegible]
3	7 4 50.[illegible]7	[illegible]	24 32 20.3	[illegible]
4	7 7 4.[illegible]	[illegible]	24 26 14.2	[illegible]
5	7 9 17.78	[illegible]	24 20 0.6	[illegible]
6	7 11 31.03	[illegible]	24 13 39.5	[illegible]
7	7 13 44.24	[illegible]	24 7 10.[illegible]	[illegible]
8	7 15 57.10	[illegible]	24 0 34.8	[illegible]
9	7 18 9.92	[illegible]	23 53 51.3	[illegible]
10	7 20 22.59	[illegible]	23 47 0.4	[illegible]
11	7 22 35.11	[illegible]	23 40 2.2	[illegible]
12	7 24 47.48	[illegible]	23 32 56.6	[illegible]
13	7 26 59.[illegible]	[illegible]	23 25 43.7	[illegible]
14	7 29 11.74	[illegible]	23 18 21.7	[illegible]
15	7 31 23.63	[illegible]	23 10 50.5	[illegible]
16	7 33 35.36	[illegible]	23 3 [illegible]2.1	[illegible]
17	7 35 4[illegible].[illegible]2	[illegible]	22 55 4[illegible].6	[illegible]
18	7 37 58.31	[illegible]	22 47 51.9	[illegible]
19	7 40 9.54	[illegible]	22 39 5[illegible].2	[illegible]
20	7 42 20.5[illegible]	[illegible]	22 31 53.6	[illegible]
21	7 44 31.4[illegible]	[illegible]	22 23 44.1	[illegible]
22	7 46 42.1[illegible]	[illegible]	22 15 27.7	[illegible]
23	7 48 52.71	[illegible]	22 7 4.4	[illegible]
24	7 51 [illegible]	[illegible]	N. 21 58 14.2	[illegible]

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY, JULY 1.			
	h m s	s	° ′ ″	″
0	7 51 3.06	[illegible]	N.21 58 34.2	[illegible]

PHASES OF THE MOON.

			d	h	m
☽	First Quarter	June	7	19	2.4
○	Full Moon		14	9	1.5
☾	Last Quarter		21	11	23.9
●	New Moon		29	14	55.2

			d	h
☾	Perigee	June	13	3.5
☾	Apogee		25	10.5

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	IIIʰ. ° ′ ″	P. L. of Diff.	VIʰ. ° ′ ″	P. L. of Diff.	IXʰ. ° ′ ″	P. L. of Diff.
2	Sun	W.	22 5 56	3395	23 28 18	3380	24 50 57	3365	26 13 53	3351
	Regulus	E.	54 20 43	2962	52 49 43	2956	51 18 35	2950	49 47 19	2943
	Jupiter	E.	58 7 36	3005	56 37 29	2998	55 7 14	2992	53 36 51	2986
	Spica	E.	108 24 17	2963	106 53 18	2957	105 22 11	2950	103 50 55	2943
3	Sun	W.	33 12 13	3293	34 36 33	3281	36 1 7	3270	37 25 54	3259
	Regulus	E.	42 8 56	2909	40 36 49	2902	39 4 33	2895	37 32 8	2887
	Jupiter	E.	46 3 0	2954	44 31 49	2946	43 0 29	2940	41 29 1	2933
	Spica	E.	96 12 25	2907	94 40 15	2899	93 7 55	2891	91 35 25	2883
4	Sun	W.	44 32 58	3204	45 59 2	3193	47 25 19	3182	48 51 50	3171
	Spica	E.	83 50 16	2840	82 16 40	2831	80 42 53	2821	79 8 53	2812
	Saturn	E.	117 32 42	2852	115 59 22	2842	114 25 49	2831	112 52 2	2821
5	Sun	W.	56 7 52	3111	57 35 48	3099	59 3 59	3087	60 32 25	3074
	Pollux	W.	20 33 15	2900	22 5 34	2870	23 38 31	2845	25 12 1	2821
	Spica	E.	71 15 43	2762	69 40 25	2750	68 4 52	2740	66 29 5	2729
	Saturn	E.	104 59 43	2767	103 24 32	2756	101 49 7	2745	100 13 27	2733
6	Sun	W.	67 58 34	3007	69 28 38	2993	70 58 59	2980	72 29 37	2965
	Pollux	W.	33 6 37	2722	34 42 47	2705	36 19 20	2689	37 56 15	2672
	Spica	E.	58 26 24	2670	56 49 4	2658	55 11 28	2646	53 33 35	2633
	Saturn	E.	92 11 10	2673	90 33 54	2660	88 56 21	2649	87 18 32	2635
7	Sun	W.	80 7 24	2891	81 39 54	2876	83 12 43	2862	84 45 51	2845
	Pollux	W.	46 6 21	2592	47 45 27	2576	49 24 55	2561	51 4 44	2545
	Mars	W.	25 52 18	2760	27 27 38	2745	29 3 18	2729	30 39 19	2714
	Spica	E.	45 19 50	2569	43 40 12	2556	42 0 16	2542	40 20 1	2529
	Saturn	E.	79 5 1	2570	77 25 25	2556	75 45 30	2543	74 5 17	2530
	Antares	E.	91 4 49	2557	89 24 55	2543	87 44 42	2529	86 4 9	2515
8	Sun	W.	92 36 38	2767	94 11 49	2751	95 47 21	2735	97 23 14	2719
	Pollux	W.	59 29 16	2467	61 11 16	2451	62 53 38	2436	64 36 21	2420
	Mars	W.	38 44 33	2636	40 22 39	2621	42 1 6	2605	43 39 54	2589
	Regulus	W.	22 26 54	2465	24 8 56	2448	25 51 23	2430	27 34 15	2413
	Saturn	E.	65 39 29	2462	63 57 22	2449	62 14 57	2436	60 32 13	2422
	Antares	E.	77 36 24	2442	75 53 49	2428	74 10 54	2413	72 27 38	2398
9	Sun	W.	105 27 58	2640	107 5 58	2624	108 44 20	2609	110 23 3	2594
	Pollux	W.	73 15 30	2344	75 0 25	2329	76 45 42	2314	78 31 21	2300
	Mars	W.	51 59 19	2511	53 40 17	2496	55 21 36	2481	57 3 16	2466
	Regulus	W.	36 14 24	2334	37 59 34	2318	39 45 7	2303	41 31 2	2288
	Jupiter	W.	31 48 4	2387	33 31 58	2370	35 16 16	2353	37 0 58	2337
	Saturn	E.	51 53 54	2359	50 9 21	2348	48 24 31	2337	46 39 25	2326
	Antares	E.	63 45 55	2324	62 0 31	2309	60 14 45	2295	58 28 38	2281
10	Sun	W.	118 41 45	2520	120 22 30	2507	122 3 34	2494	123 44 56	2480
	Pollux	W.	87 24 50	2230	89 12 33	2216	91 0 36	2204	92 48 58	2191
	Mars	W.	65 36 50	2394	67 20 34	[illegible]	69 4 38	2366	70 49 2	2353
	Regulus	W.	50 25 59	2217	52 14 1	2204	54 2 23	2190	55 51 5	2178
	Jupiter	W.	45 50 8	2262	47 37 4	2248	49 24 20	2235	51 11 56	[illegible]
	Antares	E.	49 32 50	2211	47 44 39	2198	45 56 9	2185	44 7 19	2172

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Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
2	Sun	W.	27 37 5	3110	29 0 32	3107	30 24 12	[illegible]	31 48 6	[illegible]
	Regulus	E.	48 15 55	[illegible]	46 44 23	[illegible]	45 12 43	[illegible]	43 40 54	[illegible]
	Jupiter	E.	52 6 21	[illegible]	50 35 43	[illegible]	49 4 57	[illegible]	47 34 3	[illegible]
	Spica	E.	102 19 31	[illegible]	100 47 58	[illegible]	99 16 16	[illegible]	97 44 25	[illegible]
3	Sun	W.	38 50 53	[illegible]	40 16 5	[illegible]	41 41 30	[illegible]	43 7 7	[illegible]
	Regulus	E.	35 59 33	[illegible]	34 26 49	[illegible]	32 53 55	[illegible]	31 20 51	[illegible]
	Jupiter	E.	39 57 24	[illegible]	38 25 38	[illegible]	36 53 41	[illegible]	35 21 39	[illegible]
	Spica	E.	90 2 45	[illegible]	88 29 54	[illegible]	86 56 53	[illegible]	85 23 40	[illegible]
4	Sun	W.	50 18 34	3150	51 45 32	3148	53 12 44	[illegible]	54 40 11	[illegible]
	Spica	E.	77 34 41	[illegible]	76 0 17	[illegible]	74 25 39	[illegible]	72 50 48	[illegible]
	Saturn	E.	111 18 2	[illegible]	109 43 48	[illegible]	108 9 21	[illegible]	106 34 39	[illegible]
5	Sun	W.	62 1 6	[illegible]	63 30 3	[illegible]	64 59 17	[illegible]	66 28 47	[illegible]
	Pollux	W.	26 46 2	[illegible]	28 20 31	[illegible]	29 55 28	[illegible]	31 30 50	[illegible]
	Spica	E.	64 53 4	[illegible]	63 16 47	[illegible]	61 40 15	[illegible]	60 3 27	[illegible]
	Saturn	E.	98 37 31	[illegible]	97 1 20	[illegible]	95 24 53	[illegible]	93 48 10	[illegible]
6	Sun	W.	74 0 34	[illegible]	75 31 49	[illegible]	77 3 22	[illegible]	78 35 13	[illegible]
	Pollux	W.	39 33 33	[illegible]	41 11 13	[illegible]	42 49 14	[illegible]	44 27 37	[illegible]
	Spica	E.	51 55 25	[illegible]	50 16 58	[illegible]	48 38 13	[illegible]	46 59 10	[illegible]
	Saturn	E.	85 40 25	[illegible]	84 2 1	[illegible]	82 23 19	[illegible]	80 44 19	[illegible]
7	Sun	W.	86 19 20	[illegible]	87 53 9	[illegible]	89 27 18	[illegible]	91 1 48	[illegible]
	Pollux	W.	52 44 55	[illegible]	54 25 28	[illegible]	56 6 22	[illegible]	57 47 38	[illegible]
	Mars	W.	32 15 40	[illegible]	33 52 22	[illegible]	35 29 25	[illegible]	37 6 48	[illegible]
	Spica	E.	38 [illegible] 28	[illegible]	36 58 36	[illegible]	35 17 26	[illegible]	33 35 57	[illegible]
	Saturn	E.	72 24 45	[illegible]	70 43 54	[illegible]	69 2 45	[illegible]	67 21 16	[illegible]
	Antares	E.	84 23 16	[illegible]	82 42 4	[illegible]	81 0 31	[illegible]	79 18 38	[illegible]
8	Sun	W.	98 59 29	[illegible]	100 36 4	[illegible]	102 13 1	[illegible]	103 50 19	[illegible]
	Pollux	W.	66 19 27	[illegible]	68 2 55	[illegible]	69 46 45	[illegible]	71 30 57	[illegible]
	Mars	W.	45 19 4	[illegible]	46 58 35	[illegible]	48 [illegible] 28	[illegible]	50 18 43	[illegible]
	Regulus	W.	[illegible] 17 31	[illegible]	31 1 10	[illegible]	32 45 12	[illegible]	34 29 37	[illegible]
	Saturn	E.	58 49 10	[illegible]	57 5 46	[illegible]	55 22 8	[illegible]	53 38 10	[illegible]
	Antares	E.	70 44 0	[illegible]	69 0 1	[illegible]	67 15 40	[illegible]	65 30 58	[illegible]
9	Sun	W.	112 2 6	[illegible]	113 41 30	[illegible]	115 21 15	[illegible]	117 1 20	[illegible]
	Pollux	W.	80 17 21	[illegible]	82 3 43	[illegible]	83 50 24	[illegible]	85 37 27	[illegible]
	Mars	W.	59 45 17	[illegible]	60 27 39	[illegible]	62 10 22	[illegible]	63 53 26	[illegible]
	Regulus	W.	43 17 19	[illegible]	45 3 57	[illegible]	46 50 57	[illegible]	48 38 18	[illegible]
	Jupiter	W.	38 46 3	[illegible]	40 31 31	[illegible]	42 17 21	[illegible]	44 3 34	[illegible]
	Saturn	E.	44 54 4	[illegible]	43 8 28	[illegible]	41 22 39	[illegible]	39 36 38	[illegible]
	Antares	E.	56 42 10	[illegible]	54 55 21	[illegible]	53 8 11	[illegible]	51 20 41	[illegible]
10	Sun	W.	[illegible]	[illegible]	[illegible]	[illegible]	128 50 51	[illegible]	130 33 23	[illegible]
	Pollux	W.	[illegible]	[illegible]	[illegible]	[illegible]	98 15 55	[illegible]	100 5 29	[illegible]
	Mars	W.	[illegible] 44	[illegible]	74 [illegible] 45	[illegible]	76 4 4	[illegible]	77 4[illegible] 40	[illegible]
	Regulus	W.	[illegible]	[illegible]	[illegible]	[illegible]	61 19 4	[illegible]	63 9 0	[illegible]
	Jupiter	W.	52 [illegible] 52	[illegible]	54 47 7	[illegible]	56 36 41	[illegible]	58 25 31	[illegible]
	Antares	E.	42 [illegible] 10	[illegible]	40 28 42	[illegible]	38 39 57	[illegible]	36 48 54	[illegible]

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Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	III^h. ° ′ ″	P. L. of Diff.	VI^h. ° ′ ″	P. L. of Diff.	IX^h. ° ′ ″	P. L. of Diff.
10	α Aquilæ	E.	102 35 50	2858	101 2 37	2837	99 28 57	2817	97 54 51	2799
11	Pollux	W.	101 55 20	2135	103 45 26	2124	105 35 48	2115	107 26 24	2106
	Mars	W.	79 35 33	2294	81 21 42	2283	83 8 7	2272	84 54 47	2262
	Regulus	W.	64 59 14	2119	66 49 44	2109	68 40 30	2099	70 31 31	2089
	Jupiter	W.	60 14 42	2161	62 4 8	2151	63 53 50	2141	65 43 47	2131
	Antares	E.	34 58 34	2115	33 7 58	2105	31 17 6	2095	29 25 59	2085
	α Aquilæ	E.	89 59 5	2730	88 23 5	2721	86 46 53	2713	85 10 31	2707
	Fomalhaut	E.	114 53 19	2564	113 13 35	2541	111 33 19	2520	109 52 34	2502
12	Mars	W.	93 51 27	2223	95 39 20	2216	97 27 23	2211	99 15 34	2206
	Regulus	W.	79 49 57	2051	81 42 12	2044	83 34 37	2039	85 27 10	2034
	Jupiter	W.	74 56 56	2092	76 48 8	2086	78 39 29	2080	80 30 59	2075
	Spica	W.	25 51 35	2073	27 43 13	2066	29 35 5	2057	31 27 10	2051
	α Aquilæ	E.	77 7 27	2704	75 30 53	2709	73 54 25	2716	72 18 7	2726
	Fomalhaut	E.	101 22 52	2429	99 39 58	2419	97 56 50	2410	96 13 29	2403
	α Pegasi	E.	123 35 27	2285	121 49 5	2270	120 2 21	2256	118 15 16	2243
13	Mars	W.	108 17 56	2192	110 6 35	2192	111 55 14	2192	113 43 53	2194
	Regulus	W.	94 51 26	2081	96 44 28	2080	98 37 31	2081	100 30 33	2081
	Jupiter	W.	89 49 57	2062	91 41 55	2061	93 33 54	2062	95 25 52	2062
	Spica	W.	40 49 44	2030	42 42 31	2028	44 35 21	2028	46 28 12	2028
	α Aquilæ	E.	64 20 58	2815	62 46 49	2842	61 13 15	2872	59 40 20	2907
	Fomalhaut	E.	87 34 48	2387	85 50 54	2388	84 7 2	2391	82 23 14	2395
	α Pegasi	E.	109 15 59	2202	107 27 34	2198	105 39 3	2194	103 50 27	2192
14	Regulus	W.	109 55 2	2036	111 47 40	2042	113 40 9	2048	115 32 29	2054
	Jupiter	W.	104 44 59	2078	106 36 32	2084	108 27 56	2090	110 19 11	2097
	Spica	W.	55 51 59	2040	57 44 31	2046	59 36 54	2051	61 29 9	2057
	Fomalhaut	E.	73 46 27	2439	72 3 48	2453	70 21 29	2469	68 39 32	2486
	α Pegasi	E.	94 47 12	2198	92 58 42	2203	91 10 19	2208	89 22 4	2215
15	Spica	W.	70 47 40	2099	72 38 41	2109	74 29 27	2120	76 19 56	2131
	Saturn	W.	38 6 16	2160	39 55 44	2164	41 45 6	2170	43 34 19	2176
	Antares	W.	24 56 49	2092	26 48 0	2103	28 38 55	2114	30 29 33	2125
	Fomalhaut	E.	60 16 50	2606	58 38 3	2637	56 59 58	2671	55 22 39	2708
	α Pegasi	E.	80 23 47	2263	78 36 53	2276	76 50 18	2289	75 4 3	2304
16	Spica	W.	85 27 41	2298	87 16 12	2312	89 4 22	2327	90 52 9	2343
	Saturn	W.	52 37 20	2226	54 25 9	2238	56 12 40	2251	57 59 51	2265
	Antares	W.	39 38 3	2191	41 26 44	2206	43 15 2	2221	45 2 58	2237
	Fomalhaut	E.	47 29 54	2930	45 58 38	3014	44 28 42	3082	43 0 11	3158
	α Pegasi	E.	66 18 39	2393	64 34 54	2413	62 51 38	2436	61 8 54	2458
	α Arietis	E.	108 18 16	2208	106 30 0	2223	104 42 6	2237	102 54 34	2253
	Venus	E.	113 56 38	2468	112 14 40	2484	110 33 4	2499	108 51 49	2515
17	Spica	W.	99 45 8	2326	101 30 30	2344	103 15 26	2362	104 59 56	2379
	Saturn	W.	66 50 29	2342	68 35 28	2357	70 20 4	2375	72 4 15	2391
	Antares	W.	53 56 39	2320	55 42 9	2337	57 27 14	2355	59 11 53	2373
	α Pegasi	E.	52 43 52	2593	51 4 47	2624	49 26 25	2657	47 48 47	2690
	α Arietis	E.	94 2 48	2335	92 17 40	2353	90 32 57	2371	88 48 40	2388
	Venus	E.	100 31 27	2604	98 52 37	2622	97 14 12	2641	95 36 13	2660

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			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	α Aquilæ	E.	96 20 22	[illegible]	94 45 31	[illegible]	93 10 20	[illegible]	91 34 51	[illegible]
11	Pollux	W.	109 17 14	[illegible]	111 8 17	[illegible]	112 59 31	[illegible]	114 50 56	[illegible]
	Mars	W.	86 41 42	[illegible]	88 28 50	[illegible]	90 16 11	[illegible]	92 3 44	[illegible]
	Regulus	W.	72 22 47	[illegible]	74 14 16	[illegible]	76 5 58	[illegible]	77 57 52	[illegible]
	Jupiter	W.	67 33 59	[illegible]	69 24 25	[illegible]	71 15 3	[illegible]	73 5 54	[illegible]
	Antares	E.	27 34 37	[illegible]	25 43 2	[illegible]	23 51 14	[illegible]	21 59 14	[illegible]
	α Aquilæ	E.	83 34 1	[illegible]	81 57 25	[illegible]	80 20 46	[illegible]	78 44 6	[illegible]
	Fomalhaut	E.	108 11 23	[illegible]	106 29 47	[illegible]	104 47 48	[illegible]	103 5 29	[illegible]
12	Mars	W.	101 3 52	[illegible]	102 52 16	[illegible]	104 40 46	[illegible]	106 29 20	[illegible]
	Regulus	W.	87 19 51	[illegible]	89 12 38	[illegible]	91 5 30	[illegible]	92 58 26	[illegible]
	Jupiter	W.	82 22 36	[illegible]	84 14 19	[illegible]	86 6 8	[illegible]	87 58 1	[illegible]
	Spica	W.	33 19 25	[illegible]	35 11 50	[illegible]	37 4 22	[illegible]	38 57 1	[illegible]
	α Aquilæ	E.	70 42 2	[illegible]	69 6 13	[illegible]	67 30 44	[illegible]	65 55 38	[illegible]
	Fomalhaut	E.	94 29 58	[illegible]	92 46 18	[illegible]	91 2 32	[illegible]	89 18 41	[illegible]
	α Pegasi	E.	116 27 53	[illegible]	114 40 14	[illegible]	112 52 21	[illegible]	111 4 15	[illegible]
13	Mars	W.	115 32 30	[illegible]	117 21 5	[illegible]	119 9 36	[illegible]	120 58 2	[illegible]
	Regulus	W.	102 23 34	[illegible]	104 16 32	[illegible]	106 9 27	[illegible]	108 2 17	[illegible]
	Jupiter	W.	97 17 49	[illegible]	99 9 43	[illegible]	101 1 34	[illegible]	102 53 20	[illegible]
	Spica	W.	48 21 3	[illegible]	50 13 52	[illegible]	52 6 39	[illegible]	53 59 22	[illegible]
	α Aquilæ	E.	58 8 10	[illegible]	56 36 49	[illegible]	55 6 22	[illegible]	53 36 56	[illegible]
	Fomalhaut	E.	80 39 32	[illegible]	78 55 58	[illegible]	77 12 34	[illegible]	75 29 23	[illegible]
	α Pegasi	E.	102 1 47	[illegible]	100 13 6	[illegible]	98 24 26	[illegible]	96 35 47	[illegible]
14	Regulus	W.	117 24 39	[illegible]	119 16 37	[illegible]	121 8 23	[illegible]	122 59 56	[illegible]
	Jupiter	W.	112 10 15	[illegible]	114 1 7	[illegible]	115 51 47	[illegible]	117 42 13	[illegible]
	Spica	W.	63 21 15	[illegible]	65 13 10	[illegible]	67 4 53	[illegible]	68 56 23	[illegible]
	Fomalhaut	E.	66 57 59	[illegible]	65 16 54	[illegible]	63 36 19	[illegible]	61 56 16	[illegible]
	α Pegasi	E.	87 33 59	[illegible]	85 46 5	[illegible]	83 58 24	[illegible]	82 10 58	[illegible]
15	Spica	W.	78 10 8	[illegible]	80 0 1	[illegible]	81 49 35	[illegible]	83 38 48	[illegible]
	Saturn	W.	45 23 22	[illegible]	47 12 13	[illegible]	49 0 51	[illegible]	50 49 14	[illegible]
	Antares	W.	32 19 54	[illegible]	34 9 5?	[illegible]	35 59 39	[illegible]	37 49 1	[illegible]
	Fomalhaut	E.	53 46 10	[illegible]	52 10 34	[illegible]	50 35 57	[illegible]	49 2 22	[illegible]
	α Pegasi	E.	73 18 10	[illegible]	71 32 39	[illegible]	69 47 33	[illegible]	68 2 52	[illegible]
16	Spica	W.	92 39 33	[illegible]	94 26 33	[illegible]	96 13 9	[illegible]	97 59 21	[illegible]
	Saturn	W.	59 46 42	[illegible]	61 33 12	[illegible]	63 19 20	[illegible]	65 5 6	[illegible]
	Antares	W.	46 50 30	[illegible]	48 37 39	[illegible]	50 24 23	[illegible]	52 10 43	[illegible]
	Fomalhaut	E.	41 [illegible] 11	[illegible]	40 7 51	[illegible]	38 44 20	[illegible]	37 22 46	[illegible]
	α Pegasi	E.	59 26 42	[illegible]	57 45 4	[illegible]	56 4 2	[illegible]	54 23 37	[illegible]
	α Arietis	E.	101 7 26	[illegible]	99 20 41	[illegible]	97 34 19	[illegible]	95 48 21	[illegible]
	Venus	E.	107 10 57	[illegible]	105 30 28	[illegible]	103 50 23	[illegible]	102 10 43	[illegible]
17	Spica	W.	107 44 1	[illegible]	108 27 40	[illegible]	110 10 52	[illegible]	111 53 38	[illegible]
	Saturn	W.	[illegible]	[illegible]	75 31 24	[illegible]	77 14 21	[illegible]	78 56 52	[illegible]
	Antares	W.	[illegible]	[illegible]	62 3? 55	[illegible]	64 23 17	[illegible]	66 6 13	[illegible]
	α Pegasi	E.	46 11 56	[illegible]	44 35 54	[illegible]	43 0 45	[illegible]	41 26 31	[illegible]
	α Arietis	E.	87 4 48	[illegible]	85 21 22	[illegible]	83 38 22	[illegible]	81 55 48	[illegible]
	Venus	E.	93 58 40	[illegible]	92 21 34	[illegible]	90 44 54	[illegible]	89 8 41	[illegible]

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18	SATURN	W.	80 38 58	2481	82 20 38	2499	84 1 53	2517	85 42 43	2535
	Antares	W.	67 48 42	2465	69 30 45	2483	71 12 22	2502	72 53 33	2520
	α Arietis	E.	80 13 41	2480	78 32 0	2499	76 50 45	2517	75 9 56	2536
	VENUS	E.	87 32 54	2761	85 57 35	2781	84 22 42	2802	82 48 17	2823
	SUN	E.	131 26 0	2793	129 51 23	2812	128 17 11	2832	126 43 25	2851
19	SATURN	W.	94 0 31	2626	95 38 50	2645	97 16 44	2663	98 54 13	2681
	Antares	W.	81 13 6	2611	82 51 46	2629	84 30 1	2647	86 7 52	2665
	α Arietis	E.	66 52 20	2630	65 14 6	2648	63 36 16	2666	61 58 51	2684
	VENUS	E.	75 2 51	2926	73 31 5	2946	71 59 45	2967	70 28 51	2988
	SUN	E.	119 0 44	2948	117 29 26	2966	115 58 31	2985	114 28 0	3004
20	Antares	W.	94 11 19	2749	95 46 54	2766	97 22 7	2781	98 57 0	2797
	α Aquilæ	W.	47 40 28	4017	48 51 51	3971	50 3 59	3932	51 16 46	3897
	α Arietis	E.	53 57 44	2772	52 22 40	2790	50 47 59	2807	49 13 40	2824
	VENUS	E.	63 0 39	3087	61 32 14	3107	60 4 13	3126	58 36 35	3146
	SUN	E.	107 1 7	3095	105 32 51	3111	104 4 55	3129	102 37 20	3144
21	Antares	W.	106 46 30	2868	108 19 30	2882	109 52 12	2894	111 24 38	2908
	α Aquilæ	W.	57 28 18	3776	58 43 45	3760	59 59 29	3746	61 15 28	3733
	α Arietis	E.	41 27 25	2905	39 55 12	2920	38 23 18	2935	36 51 44	2950
	VENUS	E.	51 24 8	3839	49 58 45	3857	48 33 43	3875	47 9 2	3894
	SUN	E.	95 24 12	3822	93 58 29	3836	92 33 3	3850	91 7 53	3864
22	α Aquilæ	W.	67 38 7	3693	68 55 2	3688	70 12 2	3685	71 29 7	3680
	Fomalhaut	W.	42 38 26	3843	43 52 44	3806	45 7 40	3772	46 23 11	3743
	VENUS	E.	40 10 55	3384	38 48 20	3402	37 26 6	3422	36 4 14	3441
	SUN	E.	84 5 50	3324	82 42 6	3335	81 18 35	3345	79 55 16	3355
23	α Aquilæ	W.	77 55 9	3673	79 12 25	3673	80 29 41	3673	81 46 57	3674
	Fomalhaut	W.	52 47 38	3633	54 5 37	3617	55 23 53	3602	56 42 25	3589
	α Pegasi	W.	30 10 26	3737	31 26 34	3687	32 43 35	3642	34 1 24	3603
	SUN	E.	73 1 16	3397	71 38 56	3403	70 16 43	3410	68 54 38	3415
24	α Aquilæ	W.	88 12 57	3682	89 30 3	3684	90 47 7	3688	92 4 7	3692
	Fomalhaut	W.	63 18 20	3536	64 38 4	3528	65 57 57	3520	67 17 59	3513
	α Pegasi	W.	40 39 37	3466	42 0 39	3446	43 22 3	3430	44 43 46	3413
	SUN	E.	62 5 41	3438	60 44 8	3442	59 22 39	3445	58 1 13	3446
25	α Aquilæ	W.	98 28 12	3711	99 44 47	3717	101 1 16	3723	102 17 39	3729
	Fomalhaut	W.	74 0 5	3480	75 20 51	3475	76 41 43	3470	78 2 41	3464
	α Pegasi	W.	51 36 31	3349	52 59 46	3338	54 23 13	3329	55 46 51	3319
	SUN	E.	51 14 33	3453	49 53 16	3453	48 31 59	3453	47 10 42	3452
26	Fomalhaut	W.	84 48 54	3441	86 10 24	3437	87 31 59	3433	88 53 38	3430
	α Pegasi	W.	62 47 42	3276	64 12 22	3268	65 37 11	3260	67 2 9	3252
	SUN	E.	40 23 53	3443	39 2 25	3439	37 40 53	3438	36 19 19	3434
27	Fomalhaut	W.	95 42 53	3413	97 4 55	3411	98 26 59	3408	99 49 6	3408
	α Pegasi	W.	74 9 17	3214	75 35 9	3207	77 1 10	3200	78 27 19	3193
	α Arietis	W.	30 49 43	3093	32 18 1	3084	33 46 30	3075	35 15 10	3066
	SUN	E.	29 30 31	3416	28 8 33	3413	26 46 31	3408	25 24 24	3405

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Saturn	W.	87 23 7	[illegible]	89 3 6	[illegible]	90 42 39	[illegible]	92 21 47	[illegible]
	Antares	W.	74 34 19	[illegible]	76 14 59	[illegible]	77 54 33	[illegible]	79 34 2	[illegible]
	α Arietis	E.	73 29 33	[illegible]	71 49 36	[illegible]	70 10 5	[illegible]	68 31 0	[illegible]
	Venus	E.	81 14 18	[illegible]	79 40 46	[illegible]	78 7 41	[illegible]	76 35 3	[illegible]
	Sun	E.	125 10 3	[illegible]	123 37 6	[illegible]	122 4 34	[illegible]	120 32 27	[illegible]
19	Saturn	W.	100 31 19	[illegible]	102 8 1	[illegible]	103 44 20	[illegible]	105 20 16	[illegible]
	Antares	W.	87 45 19	[illegible]	89 22 23	[illegible]	90 59 4	[illegible]	92 35 23	[illegible]
	α Arietis	E.	60 21 50	[illegible]	58 45 13	[illegible]	57 9 0	[illegible]	55 33 11	[illegible]
	Venus	E.	68 58 23	[illegible]	67 28 20	[illegible]	65 58 48	[illegible]	64 29 28	[illegible]
	Sun	E.	112 57 52	[illegible]	111 28 7	[illegible]	109 58 45	[illegible]	108 29 45	[illegible]
20	Antares	W.	100 31 32	[illegible]	102 5 45	[illegible]	103 39 38	[illegible]	105 13 13	[illegible]
	α Aquilæ	W.	52 30 9	[illegible]	53 44 3	[illegible]	54 58 24	[illegible]	56 13 10	[illegible]
	α Arietis	E.	47 39 43	[illegible]	46 6 8	[illegible]	44 32 53	[illegible]	42 59 59	[illegible]
	Venus	E.	57 9 21	[illegible]	55 42 29	[illegible]	54 16 0	[illegible]	52 49 53	[illegible]
	Sun	E.	101 10 4	[illegible]	99 43 8	[illegible]	98 16 31	[illegible]	96 50 13	[illegible]
21	Antares	W.	112 56 47	[illegible]	114 28 41	[illegible]	116 0 21	[illegible]	117 31 47	[illegible]
	α Aquilæ	W.	62 31 40	[illegible]	63 48 3	[illegible]	65 4 36	[illegible]	66 21 18	[illegible]
	α Arietis	E.	35 20 29	[illegible]	33 49 34	[illegible]	32 18 58	[illegible]	30 48 42	[illegible]
	Venus	E.	45 44 43	[illegible]	44 20 44	[illegible]	42 57 7	[illegible]	41 33 51	[illegible]
	Sun	E.	89 42 59	[illegible]	88 18 20	[illegible]	86 53 56	[illegible]	85 29 46	[illegible]
22	α Aquilæ	W.	72 46 15	[illegible]	74 3 26	[illegible]	75 20 39	[illegible]	76 37 54	[illegible]
	Fomalhaut	W.	47 39 13	[illegible]	48 55 43	[illegible]	50 12 39	[illegible]	51 29 58	[illegible]
	Venus	E.	34 42 44	[illegible]	33 21 37	[illegible]	32 0 55	[illegible]	30 40 34	[illegible]
	Sun	E.	78 32 8	[illegible]	77 9 11	[illegible]	75 46 23	[illegible]	74 23 45	[illegible]
23	α Aquilæ	W.	83 4 22	[illegible]	84 21 26	[illegible]	85 38 38	[illegible]	86 55 49	[illegible]
	Fomalhaut	W.	58 1 11	[illegible]	59 20 11	[illegible]	60 39 23	[illegible]	61 58 46	[illegible]
	α Pegasi	W.	35 19 55	[illegible]	36 39 4	[illegible]	37 58 46	[illegible]	39 18 58	[illegible]
	Sun	E.	67 32 39	[illegible]	66 10 47	[illegible]	64 49 0	[illegible]	63 27 18	[illegible]
24	α Aquilæ	W.	93 21 4	[illegible]	94 37 57	[illegible]	95 54 47	[illegible]	97 11 32	[illegible]
	Fomalhaut	W.	68 38 9	[illegible]	69 58 27	[illegible]	71 18 53	[illegible]	72 39 26	[illegible]
●	α Pegasi	W.	46 5 48	[illegible]	47 28 6	[illegible]	48 50 40	[illegible]	50 13 29	[illegible]
	Sun	E.	56 39 49	[illegible]	55 18 28	[illegible]	53 57 8	[illegible]	52 35 50	[illegible]
25	α Aquilæ	W.	103 33 55	[illegible]	104 50 4	[illegible]	106 6 5	[illegible]	107 21 58	[illegible]
	Fomalhaut	W.	79 23 45	[illegible]	80 44 54	[illegible]	82 6 9	[illegible]	83 27 29	[illegible]
	α Pegasi	W.	57 10 41	[illegible]	58 34 41	[illegible]	59 58 52	[illegible]	61 23 12	[illegible]
	Sun	E.	45 49 23	[illegible]	44 28 3	[illegible]	43 6 42	[illegible]	41 45 19	[illegible]
26	Fomalhaut	W.	90 15 21	[illegible]	91 37 9	[illegible]	92 59 0	[illegible]	94 20 55	[illegible]
	α Pegasi	W.	68 27 17	[illegible]	69 52 13	[illegible]	71 17 59	[illegible]	72 43 34	[illegible]
	Sun	E.	34 57 41	[illegible]	33 35 59	[illegible]	32 14 14	[illegible]	30 52 25	[illegible]
27	Fomalhaut	W.	101 11 24	[illegible]	102 33 24	[illegible]	103 55 36	[illegible]	105 17 49	[illegible]
	α Pegasi	W.	79 51 37	[illegible]	81 20 3	[illegible]	82 46 38	[illegible]	84 13 21	[illegible]
	α Arietis	W.	36 44 1	[illegible]	38 13 2	[illegible]	39 42 14	[illegible]	41 11 36	[illegible]
	Sun	E.	24 2 13	[illegible]	22 39 58	[illegible]	21 17 39	[illegible]	19 55 17	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Apparent Declination.	THE SUN'S Diff. for 1 Hour.	THE SUN'S Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Thur.	1	6 42 50.22	10.340	N.23 5 18.8	−10.59	15 46.14	68.76	3 38.00	0.482
Frid.	2	6 46 58.25	10.328	23 0 52.6	11.59	15 46.14	68.72	3 49.43	0.470
Sat.	3	6 51 5.98	10.315	22 56 2.4	12.59	15 46.14	68.68	4 0.58	0.458
SUN.	4	6 55 13.39	10.302	22 50 48.1	−13.59	15 46.15	68.64	4 11.40	0.444
Mon.	5	6 59 20.46	10.288	22 45 10.1	14.58	15 46.17	68.59	4 21.88	0.429
Tues.	6	7 3 27.16	10.272	22 39 8.3	15.56	15 46.19	68.54	4 32.00	0.413
Wed.	7	7 7 33.48	10.255	22 32 43.0	−16.54	15 46.21	68.49	4 41.73	0.397
Thur.	8	7 11 39.40	10.238	22 25 54.4	17.51	15 46.24	68.44	4 51.06	0.380
Frid.	9	7 15 44.89	10.220	22 18 42.6	18.47	15 46.28	68.38	4 59.97	0.362
Sat.	10	7 19 49.95	10.202	22 11 7.8	−19.42	15 46.31	68.32	5 8.45	0.344
SUN.	11	7 23 54.56	10.183	22 3 10.2	20.37	15 46.35	68.26	5 16.48	0.325
Mon.	12	7 27 58.71	10.163	21 54 49.9	21.31	15 46.40	68.20	5 24.05	0.306
Tues.	13	7 32 2.38	10.143	21 46 7.1	−22.25	15 46.45	68.13	5 31.15	0.286
Wed.	14	7 36 5.57	10.123	21 37 2.0	23.18	15 46.50	68.06	5 37.76	0.266
Thur.	15	7 40 8.27	10.102	21 27 34.8	24.09	15 46.55	67.99	5 43.88	0.245
Frid.	16	7 44 10.46	10.081	21 17 45.8	−25.00	15 46.61	67.92	5 49.50	0.224
Sat.	17	7 48 12.15	10.059	21 7 35.0	25.90	15 46.67	67.85	5 54.62	0.202
SUN.	18	7 52 13.31	10.037	20 57 2.7	26.79	15 46.73	67.77	5 59.21	0.180
Mon.	19	7 56 13.95	10.015	20 46 9.1	−27.67	15 46.80	67.69	6 3.28	0.158
Tues.	20	8 0 14.05	9.993	20 34 54.5	28.54	15 46.87	67.61	6 6.81	0.136
Wed.	21	8 4 13.61	9.970	20 23 19.0	29.41	15 46.94	67.53	6 9.81	0.113
Thur.	22	8 8 12.62	9.947	20 11 22.9	−30.26	15 47.02	67.45	6 12.26	0.090
Frid.	23	8 12 11.07	9.924	19 59 6.5	31.10	15 47.10	67.37	6 14.14	0.067
Sat.	24	8 16 8.96	9.900	19 46 29.9	31.93	15 47.19	67.29	6 15.47	0.043
SUN.	25	8 20 6.27	9.876	19 33 33.6	−32.76	15 47.28	67.20	6 16.22	0.019
Mon.	26	8 24 3.01	9.852	19 20 17.6	33.57	15 47.38	67.12	6 16.40	0.005
Tues.	27	8 27 59.16	9.827	19 6 42.4	34.36	15 47.48	67.04	6 16.00	0.029
Wed.	28	8 31 54.71	9.802	18 52 48.2	−35.14	15 47.59	66.95	6 15.00	0.054
Thur.	29	8 35 49.66	9.777	18 38 35.4	35.92	15 47.71	66.86	6 13.40	0.079
Frid.	30	8 39 44.01	9.752	18 24 4.1	36.68	15 47.83	66.78	6 11.19	0.104
Sat.	31	8 43 37.75	9.726	18 9 14.7	37.43	15 47.95	66.69	6 8.38	0.130
SUN.	32	8 47 30.86	9.700	N.17 54 7.6	−38.16	15 48.08	66.61	6 4.95	0.156

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.19 from the sidereal time.

The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Thur.	1	6 42 49.60	10.339	N.23 5 19.5	−10.58	3 37.97	0.480	6 39 11.63
Frid.	2	6 46 57.59	10.327	23 0 53.4	11.59	3 49.40	0.470	6 43 8.19
Sat.	3	6 51 5.29	10.314	22 56 3.2	12.59	4 0.55	0.458	6 47 4.74
SUN.	4	6 55 12.67	10.300	22 50 49.1	−13.59	4 11.37	0.444	6 51 1.30
Mon.	5	6 59 19.71	10.286	22 45 11.1	14.58	4 21.85	0.429	6 54 57.86
Tues.	6	7 3 26.39	10.270	22 39 9.5	15.56	4 31.97	0.413	6 58 54.42
Wed.	7	7 7 32.68	10.254	22 32 44.3	−16.53	4 41.70	0.397	7 2 50.98
Thur.	8	7 11 38.57	10.237	22 25 55.8	17.50	4 51.03	0.380	7 6 47.54
Frid.	9	7 15 44.04	10.219	22 18 44.2	18.47	4 59.94	0.362	7 10 44.10
Sat.	10	7 19 49.08	10.201	22 11 9.5	−19.43	5 8.42	0.344	7 14 40.65
SUN.	11	7 23 53.67	10.182	22 3 12.0	20.37	5 16.46	0.325	7 18 37.21
Mon.	12	7 27 57.79	10.162	21 54 51.8	21.31	5 24.02	0.306	7 22 33.77
Tues.	13	7 32 1.45	10.142	21 46 9.1	−22.24	5 31.12	0.286	7 26 30.33
Wed.	14	7 36 4.62	10.122	21 37 4.1	23.16	5 37.74	0.266	7 30 26.88
Thur.	15	7 40 7.30	10.101	21 27 37.1	24.08	5 43.86	0.245	7 34 23.44
Frid.	16	7 44 9.48	10.080	21 17 48.2	−24.99	5 49.48	0.224	7 38 20.00
Sat.	17	7 48 11.16	10.059	21 7 37.5	25.89	5 54.60	0.202	7 42 16.56
SUN.	18	7 52 12.31	10.037	20 57 5.3	26.78	5 59.19	0.180	7 46 13.12
Mon.	19	7 56 12.93	10.015	20 46 11.9	−27.67	6 3.26	0.158	7 50 9.67
Tues.	20	8 0 13.03	9.993	20 34 57.3	28.54	6 6.80	0.136	7 54 6.23
Wed.	21	8 4 12.58	9.970	20 23 22.0	29.40	6 9.79	0.114	7 58 2.79
Thur.	22	8 8 11.59	9.947	20 11 26.0	−30.25	6 12.25	0.091	8 1 59.34
Frid.	23	8 12 10.04	9.924	19 59 9.7	31.10	6 14.14	0.067	8 5 55.90
Sat.	24	8 16 7.92	9.900	19 46 33.2	31.93	6 15.46	0.044	8 9 52.46
SUN.	25	8 20 5.24	9.876	19 33 37.0	−32.75	6 16.22	0.020	8 13 49.02
Mon.	26	8 24 1.[illegible]	9.852	19 20 21.1	33.56	6 16.40	0.004	8 17 45.57
Tues.	27	8 27 5[illegible].13	9.827	19 6 46.0	34.36	6 16.00	0.029	8 21 42.13
Wed.	28	8 31 5[illegible]	9.802	18 52 51.8	35.15	6 15.00	0.054	8 25 38.69
Thur.	29	8 35 4[illegible]	9.777	18 38 39.0	35.92	6 13.40	0.079	8 29 35.24
Frid.	30	8 39 4[illegible]	9.752	18 24 7.8	36.68	6 11.20	0.104	8 33 31.80
Sat.	31	8 43 3[illegible].75	9.727	18 9 18.4	37.43	6 8.40	0.130	8 37 28.36
SUN.	32	8 47 2[illegible]	[illegible]	N.17 54 11.4	−38.16	6 4.96	0.156	8 41 24.91

Note.—The semi-diameter for mean noon may be assumed the same as that for apparent noon.
The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

Diff. for 1 Hour, + 9ˢ.8565. (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ′	Diff. for 1 Hour.	THE SUN'S LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	182	99 50 44.5	50 5.5	143.05	− 0.15	0.0072213	+ 0.7	17 17 57.86
2	183	100 47 57.8	47 18.6	143.05	0.28	0.0072215	− 0.4	17 14 1.95
3	184	101 45 10.9	44 31.5	143.04	0.40	0.0072192	1.5	17 10 6.04
4	185	102 42 23.7	41 44.1	143.03	− 0.52	0.0072144	− 2.5	17 6 10.12
5	186	103 39 36.4	38 56.6	143.02	0.62	0.0072072	3.5	17 2 14.21
6	187	104 36 48.9	36 9.0	143.02	0.69	0.0071978	4.4	16 58 18.30
7	188	105 34 1.3	33 21.2	143.01	− 0.74	0.0071862	− 5.3	16 54 22.38
8	189	106 31 13.6	30 33.3	143.01	0.77	0.0071726	6.1	16 50 26.47
9	190	107 28 25.7	27 45.2	143.01	0.75	0.0071571	6.8	16 46 30.56
10	191	108 25 37.9	24 57.2	143.01	− 0.71	0.0071399	− 7.5	16 42 34.65
11	192	109 22 50.1	22 9.3	143.01	0.63	0.0071211	8.2	16 38 38.74
12	193	110 20 2.4	19 21.4	143.02	0.54	0.0071006	8.8	16 34 42.82
13	194	111 17 14.9	16 33.7	143.03	− 0.43	0.0070788	− 9.4	16 30 46.91
14	195	112 14 27.7	13 46.3	143.04	0.30	0.0070555	10.0	16 26 51.00
15	196	113 11 40.8	10 59.3	143.06	0.17	0.0070308	10.6	16 22 55.09
16	197	114 8 54.4	8 12.7	143.08	− 0.03	0.0070047	−11.2	16 18 59.18
17	198	115 6 8.6	5 26.7	143.10	+ 0.09	0.0069771	11.8	16 15 3.27
18	199	116 3 23.5	2 41.4	143.13	0.21	0.0069480	12.4	16 11 7.35
19	200	116 60 38.9	59 56.7	143.16	+ 0.31	0.0069175	−13.1	16 7 11.44
20	201	117 57 55.2	57 12.8	143.19	0.38	0.0068852	13.8	16 3 15.53
21	202	118 55 12.4	54 29.8	143.23	0.42	0.0068512	14.6	15 59 19.62
22	203	119 52 30.4	51 47.6	143.27	+ 0.44	0.0068153	−15.4	15 55 23.71
23	204	120 49 49.3	49 6.4	143.31	0.42	0.0067773	16.3	15 51 27.80
24	205	121 47 9.1	46 26.0	143.34	0.36	0.0067373	17.2	15 47 31.88
25	206	122 44 29.8	43 46.6	143.38	+ 0.29	0.0066949	−18.1	15 43 35.97
26	207	123 41 51.5	41 8.1	143.42	0.20	0.0066503	19.1	15 39 40.06
27	208	124 39 14.2	38 30.6	143.46	+ 0.08	0.0066031	20.1	15 35 44.15
28	209	125 36 37.6	35 53.9	143.49	− 0.05	0.0065536	−21.2	15 31 48.24
29	210	126 34 2.0	33 18.1	143.53	0.18	0.0065015	22.2	15 27 52.33
30	211	127 31 27.2	30 43.2	143.56	0.30	0.0064471	23.2	15 23 56.42
31	212	128 28 53.2	28 9.0	143.60	0.42	0.0063901	24.2	15 20 0.51
32	213	129 26 19.9	25 35.5	143.63	− 0.52	0.0063308	−25.2	15 16 4.60

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ′ to the mean equinox of January $0^d.0$.

Diff. for 1 Hour, $-9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Horizontal Parallax. Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Horizontal Parallax. Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Upper Transit. Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 10.6	15 14.5	55 35.4	+1.15	55 49.4	+1.19	1 14.3	2.07	1.4
2	15 18.4	15 22.5	56 4.0	1.23	56 19.0	1.27	2 3.1	1.99	2.4
3	15 26.7	15 31.1	56 34.5	1.31	56 50.5	1.35	2 50.0	1.92	3.4
4	15 35.5	15 40.1	57 6.8	+1.37	57 23.4	+1.40	3 35.7	1.89	4.4
5	15 44.7	15 49.3	57 40.3	1.42	57 57.4	1.43	4 21.0	1.90	5.4
6	15 54.0	15 58.6	58 14.5	1.43	58 31.6	1.41	5 7.2	1.96	6.4
7	16 3.2	16 7.6	58 48.4	+1.38	59 4.6	+1.32	5 55.5	2.08	7.4
8	16 11.8	16 15.7	59 20.0	1.24	59 34.3	1.13	6 47.3	2.25	8.4
9	16 19.1	16 22.1	59 47.0	0.98	59 57.9	0.81	7 43.5	2.44	9.4
10	16 24.5	16 26.1	60 6.5	+0.60	60 12.4	+0.37	8 44.3	2.61	10.4
11	16 26.9	16 26.8	60 15.4	+0.11	60 15.2	-0.15	9 48.2	2.70	11.4
12	16 25.9	16 23.9	60 11.7	0.44	60 4.6	0.73	10 52.7	2.65	12.4
13	16 21.1	16 17.4	59 54.2	-1.00	59 40.6	-1.26	11 54.7	2.50	13.4
14	16 12.9	16 7.7	59 24.0	1.49	59 4.8	1.69	12 52.1	2.29	14.4
15	16 1.9	15 55.6	58 43.5	1.85	58 20.4	1.97	13 44.6	2.09	15.4
16	15 49.0	15 42.3	57 56.3	-2.04	57 31.5	-2.07	14 32.6	1.93	16.4
17	15 35.5	15 28.8	57 6.6	2.05	56 42.2	2.00	15 17.4	1.82	17.4
18	15 22.4	15 16.3	56 18.6	1.92	55 56.3	1.80	16 0.2	1.76	18.4
19	15 10.7	15 5.5	55 35.5	-1.65	55 16.6	-1.48	16 42.3	1.75	19.4
20	15 1.0	14 57.1	54 59.9	[illegible]	54 45.5	1.10	17 24.7	1.79	20.4
21	14 53.8	14 51.2	54 33.5	0.90	54 24.0	0.68	18 8.4	1.86	21.4
22	14 49.3	14 48.2	54 17.1	0.47	54 12.8	-0.25	18 54.1	1.95	22.4
23	14 47.7	14 47.9	54 11.0	-0.05	54 11.7	+0.15	19 42.2	2.05	23.4
24	14 48.7	14 51.1	54 14.7	+0.34	54 19.9	0.53	20 32.4	2.13	24.4
25	14 52.1	14 54.6	54 27.3	+0.69	54 36.5	+0.84	21 24.3	2.18	25.4
26	14 57.6	15 [illegible]	54 47.4	0.97	54 [illegible]	1.08	22 16.6	2.17	26.4
27	15 4.6	15 8.6	55 13.3	1.19	55 25.0	1.25	23 8.2	2.11	27.4
28	15 12.9	15 17.2	55 43.4	+1.30	55 59.3	+1.34	23 58.3	2.05	28.4
29	15 21.6	15 [illegible]	56 15.5	[illegible]	56 31.8	[illegible]	6		29.4
30	15 31.4	15 34.7	56 [illegible]	[illegible]	57 3.7	[illegible]	0 46.6	1.98	0.8
31	15 [illegible]	15 [illegible]	57 [illegible]	[illegible]	57 33.9	1.20	1 33.4	1.93	1.8
32	15 46.7	15 [illegible]	57 [illegible]	+1.14	58 1.4	+1.08	2 19.4	1.92	2.8

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 1.					SATURDAY 3.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	7 51 3.06	2.1711	N.21 58 34.2	8.559	0	9 31 49.78	2.0343	N.13 13 25.2	12.974
1	7 53 13.23	2.1681	21 49 57.3	8.671	1	9 33 51.77	2.0322	13 0 24.7	13.048
2	7 55 23.23	2.1652	21 41 13.7	8.782	2	9 35 53.64	2.0301	12 47 20.1	13.110
3	7 57 33.05	2.1622	21 32 23.4	8.893	3	9 37 55.38	2.0279	12 34 11.5	13.177
4	7 59 42.69	2.1591	21 23 26.5	9.003	4	9 39 56.99	2.0259	12 20 58.9	13.243
5	8 1 52.14	2.1560	21 14 23.0	9.113	5	9 41 58.49	2.0240	12 7 42.3	13.309
6	8 4 1.41	2.1530	21 5 12.9	9.222	6	9 43 59.87	2.0220	11 54 21.8	13.373
7	8 6 10.50	2.1499	20 55 56.4	9.329	7	9 46 1.13	2.0202	11 40 57.5	13.436
8	8 8 19.40	2.1468	20 46 33.4	9.436	8	9 48 2.29	2.0184	11 27 29.5	13.498
9	8 10 28.12	2.1438	20 37 4.0	9.542	9	9 50 3.34	2.0166	11 13 57.8	13.559
10	8 12 36.66	2.1407	20 27 28.3	9.647	10	9 52 4.28	2.0148	11 0 22.4	13.619
11	8 14 45.01	2.1377	20 17 46.4	9.751	11	9 54 5.12	2.0132	10 46 43.5	13.678
12	8 16 53.18	2.1346	20 7 58.2	9.855	12	9 56 5.87	2.0117	10 33 1.1	13.736
13	8 19 1.16	2.1315	19 58 3.8	9.957	13	9 58 6.52	2.0101	10 19 15.2	13.793
14	8 21 8.96	2.1284	19 48 3.3	10.059	14	10 0 7.08	2.0086	10 5 25.9	13.849
15	8 23 16.57	2.1253	19 37 56.7	10.160	15	10 2 7.55	2.0072	9 51 33.3	13.904
16	8 25 23.99	2.1222	19 27 44.1	10.260	16	10 4 7.94	2.0058	9 37 37.4	13.958
17	8 27 31.23	2.1192	19 17 25.5	10.359	17	10 6 8.25	2.0045	9 23 38.3	14.011
18	8 29 38.29	2.1161	19 7 1.0	10.457	18	10 8 8.48	2.0032	9 9 36.1	14.063
19	8 31 45.16	2.1130	18 56 30.7	10.554	19	10 10 8.64	2.0021	8 55 30.8	14.114
20	8 33 51.85	2.1100	18 45 54.5	10.652	20	10 12 8.73	2.0010	8 41 22.4	14.164
21	8 35 58.36	2.1070	18 35 12.5	10.748	21	10 14 8.76	2.0000	8 27 11.1	14.213
22	8 38 4.69	2.1040	18 24 24.8	10.842	22	10 16 8.73	1.9990	8 12 56.9	14.261
23	8 40 10.84	2.1009	N.18 13 31.5	10.935	23	10 18 8.64	1.9980	N. 7 58 39.8	14.308
	FRIDAY 2.					SUNDAY 4.			
0	8 42 16.80	2.0979	N.18 2 32.6	11.027	0	10 20 8.49	1.9972	N. 7 44 20.0	14.353
1	8 44 22.59	2.0950	17 51 28.2	11.120	1	10 22 8.30	1.9964	7 29 57.5	14.398
2	8 46 28.20	2.0920	17 40 18.2	11.212	2	10 24 8.06	1.9957	7 15 32.3	14.443
3	8 48 33.63	2.0891	17 29 2.8	11.301	3	10 26 7.78	1.9951	7 1 4.4	14.486
4	8 50 38.89	2.0862	17 17 42.1	11.390	4	10 28 7.47	1.9945	6 46 34.0	14.527
5	8 52 43.97	2.0833	17 6 16.0	11.478	5	10 30 7.12	1.9939	6 32 1.1	14.567
6	8 54 48.88	2.0804	16 54 44.7	11.566	6	10 32 6.74	1.9935	6 17 25.9	14.607
7	8 56 53.62	2.0776	16 43 8.1	11.652	7	10 34 6.34	1.9932	6 2 48.3	14.646
8	8 58 58.19	2.0748	16 31 26.4	11.737	8	10 36 5.92	1.9928	5 48 8.4	14.683
9	9 1 2.59	2.0720	16 19 39.6	11.822	9	10 38 5.48	1.9926	5 33 26.3	14.720
10	9 3 6.83	2.0692	16 7 47.8	11.905	10	10 40 5.03	1.9924	5 18 42.0	14.756
11	9 5 10.90	2.0664	15 55 51.0	11.988	11	10 42 4.57	1.9923	5 3 55.6	14.790
12	9 7 14.80	2.0637	15 43 49.2	12.070	12	10 44 4.11	1.9923	4 49 7.2	14.823
13	9 9 18.54	2.0611	15 31 42.6	12.150	13	10 46 3.65	1.9924	4 34 16.8	14.856
14	9 11 22.13	2.0585	15 19 31.2	12.230	14	10 48 3.20	1.9926	4 19 24.5	14.887
15	9 13 25.56	2.0559	15 7 15.0	12.309	15	10 50 2.76	1.9928	4 4 30.4	14.917
16	9 15 28.84	2.0534	14 54 54.1	12.387	16	10 52 2.33	1.9931	3 49 34.5	14.946
17	9 17 31.97	2.0508	14 42 28.6	12.463	17	10 54 1.93	1.9935	3 34 36.9	14.974
18	9 19 34.94	2.0483	14 29 58.6	12.539	18	10 56 1.55	1.9939	3 19 37.6	15.002
19	9 21 37.77	2.0459	14 17 24.0	12.614	19	10 58 1.20	1.9944	3 4 36.7	15.028
20	9 23 40.45	2.0435	14 4 44.9	12.687	20	11 0 0.88	1.9950	2 49 34.3	15.052
21	9 25 42.99	2.0412	13 52 1.5	12.760	21	11 2 0.60	1.9957	2 34 30.5	15.075
22	9 27 45.39	2.0388	13 39 13.7	12.832	22	11 4 0.37	1.9965	2 19 25.3	15.098
23	9 29 47.65	2.0366	13 26 21.6	12.904	23	11 6 0.18	1.9973	2 4 18.7	15.120
24	9 31 49.78	2.0343	N.13 13 25.2	12.974	24	11 8 0.04	1.9982	N. 1 49 10.9	15.140

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 5.

Hour	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	11 8 0.04	[illegible]	N. 1 49 10.9	15.140
1	11 9 59.96	[illegible]	1 34 1.9	15.160
2	11 11 59.95	[illegible]	1 18 51.7	15.176
3	11 14 0.00	[illegible]	1 3 40.5	[illegible]
4	11 16 0.12	[illegible]	0 48 28.3	15.211
5	11 18 0.32	[illegible]	0 33 15.2	[illegible]
6	11 20 0.60	[illegible]	0 18 1.2	[illegible]
7	11 22 0.96	[illegible]	N. 0 2 46.4	[illegible]
8	11 24 1.42	[illegible]	S. 0 12 29.1	[illegible]
9	11 26 1.98	[illegible]	0 27 45.2	[illegible]
10	11 28 2.64	[illegible]	0 43 1.9	[illegible]
11	11 30 3.40	[illegible]	0 58 19.1	[illegible]
12	11 32 4.27	[illegible]	1 13 36.8	[illegible]
13	11 34 5.26	[illegible]	1 28 54.8	[illegible]
14	11 36 6.37	[illegible]	1 44 13.1	[illegible]
15	11 38 7.61	[illegible]	1 59 31.7	[illegible]
16	11 40 8.9[illegible]	[illegible]	2 14 50.4	15.313
17	11 42 10.4[illegible]	[illegible]	2 30 9.2	[illegible]
18	11 44 12.14	[illegible]	2 45 28.1	[illegible]
19	11 46 13.94	[illegible]	3 0 46.9	15.318
20	11 48 15.[illegible]	[illegible]	3 16 5.5	[illegible]
21	11 50 17.[illegible]9	[illegible]	3 31 23.9	[illegible]
22	11 52 20.[illegible]	[illegible]	3 46 42.0	[illegible]
23	11 54 22.70	[illegible]	S. 4 1 59.8	[illegible]

TUESDAY 6.

Hour	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	11 56 25.31	[illegible]	S. 4 17 17.2	[illegible]
1	11 58 28.10	[illegible]	4 32 34.1	[illegible]
2	12 0 31.07	[illegible]	4 47 50.4	[illegible]
3	12 2 34.23	[illegible]	5 3 6.0	[illegible]
4	12 4 37.59	[illegible]	5 18 20.9	[illegible]
5	12 6 41.14	[illegible]	5 33 35.0	[illegible]
6	12 8 44.[illegible]	[illegible]	5 48 48.1	[illegible]
7	12 10 48.85	[illegible]	6 4 0.3	[illegible]
8	12 12 53.03	[illegible]	6 19 11.5	[illegible]
9	12 14 57.43	[illegible]	6 34 21.5	[illegible]
10	12 17 2.05	[illegible]	6 49 30.3	[illegible]
11	12 19 6.[illegible]	[illegible]	7 4 37.9	[illegible]
12	12 21 11.[illegible]	[illegible]	7 19 44.1	[illegible]
13	12 23 17.30	[illegible]	7 34 4[illegible].9	[illegible]
14	12 25 22.87	[illegible]	7 49 52.1	[illegible]
15	12 27 28.[illegible]	[illegible]	8 4 53.7	[illegible]
16	12 29 34.76	[illegible]	8 19 53.6	[illegible]
17	12 31 41.10	[illegible]	8 34 51.7	[illegible]
18	12 33 47.70	[illegible]	8 4[illegible] 47.9	[illegible]
19	12 35 54.57	[illegible]	9 4 42.2	[illegible]
20	12 38 1.72	[illegible]	9 1[illegible] 34.4	[illegible]
21	12 40 9.14	[illegible]	[illegible] [illegible]4 24.5	[illegible]
22	12 42 1[illegible].[illegible]5	[illegible]	[illegible] 4[illegible] 12.4	[illegible]
23	12 44 24.[illegible]5	[illegible]	1[illegible] 3 5[illegible].[illegible]	[illegible]
24	12 46 33.15	[illegible]	S. 1[illegible] 18 41.2	[illegible]

WEDNESDAY 7.

Hour	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	12 46 33.15	[illegible]	S. 10 18 41.2	[illegible]
1	12 48 41.75	[illegible]	10 33 21.9	[illegible]
2	12 50 50.65	[illegible]	10 48 0.1	[illegible]
3	12 52 59.86	[illegible]	11 2 35.6	[illegible]
4	12 55 9.39	[illegible]	11 17 8.3	[illegible]
5	12 57 19.23	[illegible]	11 31 38.2	[illegible]
6	12 59 29.39	[illegible]	11 46 5.2	[illegible]
7	13 1 39.88	[illegible]	12 0 29.1	[illegible]
8	13 3 50.71	[illegible]	12 14 49.9	[illegible]
9	13 6 1.88	[illegible]	12 29 7.5	[illegible]
10	13 8 13.39	[illegible]	12 43 21.8	14.110
11	13 10 25.25	[illegible]	12 57 32.7	14.130
12	13 12 37.45	[illegible]	13 11 40.0	[illegible]
13	13 14 50.01	[illegible]	13 25 43.7	[illegible]
14	13 17 2.93	[illegible]	13 39 43.7	[illegible]
15	13 19 16.22	[illegible]	13 53 40.0	[illegible]
16	13 21 29.87	[illegible]	14 7 32.4	[illegible]
17	13 23 43.90	[illegible]	14 21 20.7	[illegible]
18	13 25 58.30	[illegible]	14 35 4.9	[illegible]
19	13 28 13.08	[illegible]	14 48 44.9	[illegible]
20	13 30 28.24	[illegible]	15 2 20.6	[illegible]
21	13 32 43.79	[illegible]	15 15 51.9	[illegible]
22	13 34 59.73	[illegible]	15 29 18.7	[illegible]
23	13 37 16.07	[illegible]	S. 15 42 40.9	[illegible]

THURSDAY 8.

Hour	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	13 39 32.80	[illegible]	S. 15 55 58.3	[illegible]
1	13 41 49.94	[illegible]	16 9 10.9	[illegible]
2	13 44 7.48	[illegible]	16 22 18.6	[illegible]
3	13 46 25.42	[illegible]	16 35 21.3	[illegible]
4	13 48 43.77	[illegible]	16 48 18.8	[illegible]
5	13 51 2.54	[illegible]	17 1 11.1	[illegible]
6	13 53 21.72	[illegible]	17 13 58.1	[illegible]
7	13 55 41.32	[illegible]	17 26 39.6	[illegible]
8	13 58 1.34	[illegible]	17 39 15.5	[illegible]
9	14 0 21.79	[illegible]	17 51 45.7	[illegible]
10	14 2 42.67	[illegible]	18 4 10.1	[illegible]
11	14 5 3.97	[illegible]	18 16 28.6	[illegible]
12	14 7 25.70	[illegible]	18 28 41.2	[illegible]
13	14 9 47.86	[illegible]	18 40 47.6	[illegible]
14	14 12 10.46	[illegible]	18 52 47.8	[illegible]
15	14 14 33.49	[illegible]	19 4 41.7	[illegible]
16	14 16 56.[illegible]	[illegible]	19 16 29.1	[illegible]
17	14 19 20.[illegible]	[illegible]	19 28 10.0	[illegible]
18	14 21 45.20	[illegible]	19 39 44.2	[illegible]
19	14 24 9.[illegible]	[illegible]	19 51 11.6	[illegible]
20	14 26 35.20	[illegible]	20 2 32.1	[illegible]
21	14 29 0.[illegible]6	[illegible]	20 13 45.6	[illegible]
22	14 31 26.96	[illegible]	20 24 52.0	[illegible]
23	14 33 53.50	[illegible]	20 35 51.2	[illegible]
24	14 3[illegible] 20.4[illegible]	[illegible]	S. 20 46 41.0	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 9.					**SUNDAY 11.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	14 36 20.48	2.4533	S.20 46 43.0	10.802	0	16 41 37.05	2.7290	S.26 30 12.6	2.933
1	14 38 47.90	2.4607	20 57 27.4	10.677	1	16 44 20.87	2.7316	26 33 2.8	2.739
2	14 41 15.76	2.4680	21 8 4.2	10.549	2	16 47 4.84	2.7340	26 35 41.3	2.544
3	14 43 44.06	2.4753	21 18 33.3	10.420	3	16 49 48.95	2.7362	26 38 8.1	2.348
4	14 46 12.80	2.4826	21 28 54.6	10.290	4	16 52 33.18	2.7382	26 40 23.1	2.151
5	14 48 41.98	2.4899	21 39 8.1	10.158	5	16 55 17.53	2.7401	26 42 26.3	1.954
6	14 51 11.59	2.4972	21 49 13.6	10.023	6	16 58 1.99	2.7417	26 44 17.6	1.757
7	14 53 41.64	2.5044	21 59 10.9	9.887	7	17 0 46.54	2.7432	26 45 57.1	1.559
8	14 56 12.12	2.5115	22 9 0.0	9.749	8	17 3 31.17	2.7445	26 47 24.7	1.361
9	14 58 43.02	2.5186	22 18 40.8	9.609	9	17 6 15.88	2.7457	26 48 40.4	1.162
10	15 1 14.35	2.5258	22 28 13.1	9.467	10	17 9 0.65	2.7465	26 49 44.2	0.964
11	15 3 46.12	2.5330	22 37 36.9	9.324	11	17 11 45.46	2.7471	26 50 36.1	0.765
12	15 6 18.31	2.5400	22 46 52.0	9.179	12	17 14 30.30	2.7475	26 51 16.0	0.565
13	15 8 50.92	2.5469	22 55 58.4	9.032	13	17 17 15.16	2.7478	26 51 43.9	0.366
14	15 11 23.94	2.5538	23 4 55.9	8.883	14	17 20 0.04	2.7480	26 51 59.9	− 0.167
15	15 13 57.38	2.5607	23 13 44.4	8.732	15	17 22 44.92	2.7478	26 52 3.9	+ 0.033
16	15 16 31.23	2.5676	23 22 23.8	8.580	16	17 25 29.78	2.7475	26 51 55.9	0.232
17	15 19 5.49	2.5743	23 30 54.0	8.427	17	17 28 14.62	2.7471	26 51 36.0	0.431
18	15 21 40.15	2.5810	23 39 15.0	8.272	18	17 30 59.43	2.7464	26 51 4.2	0.630
19	15 24 15.21	2.5876	23 47 26.6	8.114	19	17 33 44.19	2.7454	26 50 20.4	0.829
20	15 26 50.66	2.5941	23 55 28.7	7.954	20	17 36 28.88	2.7443	26 49 24.7	1.027
21	15 29 26.50	2.6005	24 3 21.1	7.793	21	17 39 13.50	2.7430	26 48 17.1	1.226
22	15 32 2.72	2.6068	24 11 3.9	7.632	22	17 41 58.04	2.7415	26 46 57.6	1.424
23	15 34 39.32	2.6131	S.24 18 36.9	7.468	23	17 44 42.48	2.7397	S.26 45 26.2	1.621
	SATURDAY 10.					**MONDAY 12.**			
0	15 37 16.30	2.6193	S.24 26 0.1	7.303	0	17 47 26.81	2.7379	S.26 43 43.0	1.818
1	15 39 53.64	2.6253	24 33 13.3	7.136	1	17 50 11.03	2.7358	26 41 48.0	2.015
2	15 42 31.34	2.6313	24 40 16.4	6.967	2	17 52 55.11	2.7335	26 39 41.2	2.212
3	15 45 9.40	2.6372	24 47 9.4	6.797	3	17 55 39.05	2.7311	26 37 22.6	2.408
4	15 47 47.81	2.6430	24 53 52.1	6.626	4	17 58 22.84	2.7284	26 34 52.3	2.602
5	15 50 26.56	2.6486	25 0 24.5	6.453	5	18 1 6.46	2.7256	26 32 10.4	2.795
6	15 53 5.64	2.6541	25 6 46.4	6.278	6	18 3 49.91	2.7226	26 29 16.9	2.988
7	15 55 45.05	2.6595	25 12 57.8	6.103	7	18 6 33.17	2.7193	26 26 11.8	3.181
8	15 58 24.78	2.6648	25 18 58.7	5.926	8	18 9 16.23	2.7159	26 22 55.1	3.373
9	16 1 4.83	2.6700	25 24 48.9	5.747	9	18 11 59.08	2.7123	26 19 27.0	3.563
10	16 3 45.18	2.6749	25 30 28.4	5.567	10	18 14 41.71	2.7086	26 15 47.5	3.753
11	16 6 25.82	2.6797	25 35 57.0	5.386	11	18 17 24.11	2.7048	26 11 56.6	3.942
12	16 9 6.75	2.6845	25 41 14.7	5.203	12	18 20 6.28	2.7007	26 7 54.4	4.131
13	16 11 47.96	2.6891	25 46 21.4	5.020	13	18 22 48.19	2.6965	26 3 40.9	4.318
14	16 14 29.44	2.6936	25 51 17.1	4.836	14	18 25 29.84	2.6919	25 59 16.3	4.503
15	16 17 11.19	2.6979	25 56 1.7	4.650	15	18 28 11.22	2.6873	25 54 40.6	4.688
16	16 19 53.19	2.7020	26 0 35.1	4.463	16	18 30 52.32	2.6826	25 49 53.8	4.871
17	16 22 35.43	2.7058	26 4 57.3	4.275	17	18 33 33.13	2.6777	25 44 56.1	5.052
18	16 25 17.89	2.7096	26 9 8.1	4.086	18	18 36 13.65	2.6727	25 39 47.5	5.233
19	16 28 0.58	2.7133	26 13 7.6	3.896	19	18 38 53.86	2.6675	25 34 28.1	5.413
20	16 30 43.49	2.7168	26 16 55.6	3.705	20	18 41 33.75	2.6621	25 28 57.9	5.590
21	16 33 26.60	2.7201	26 20 32.2	3.514	21	18 44 13.31	2.6566	25 23 17.1	5.768
22	16 36 9.90	2.7232	26 23 57.3	3.322	22	18 46 52.54	2.6510	25 17 25.7	5.944
23	16 38 53.39	2.7262	26 27 10.8	3.128	23	18 49 31.43	2.6452	25 11 23.8	6.118
24	16 41 37.05	2.7290	S.26 30 12.6	2.933	24	18 52 9.97	2.6393	S.25 5 11.5	6.291

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 13.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	18 52 9.97	[illegible]	S.25 5 11.5	[illegible]
1	18 54 48.15	[illegible]	24 58 4[illegible].9	[illegible]
2	18 57 25.97	[illegible]	24 52 16.1	[illegible]
3	19 0 3.42	[illegible]	24 45 33.2	[illegible]
4	19 2 40.49	[illegible]	24 38 40.2	[illegible]
5	19 5 17.18	[illegible]	24 31 37.3	[illegible]
6	19 7 53.48	[illegible]	24 24 24.0	[illegible]
7	19 10 29.38	[illegible]	24 17 2.1	[illegible]
8	19 13 4.88	[illegible]	24 9 30.0	[illegible]
9	19 15 39.97	[illegible]	24 1 48.4	[illegible]
10	19 18 14.65	[illegible]	23 53 57.3	[illegible]
11	19 20 48.90	[illegible]	23 45 56.9	[illegible]
12	19 23 22.73	[illegible]	23 37 47.3	[illegible]
13	19 25 56.13	[illegible]	23 29 29.6	[illegible]
14	19 28 29.10	[illegible]	23 21 0.9	[illegible]
15	19 31 1.63	[illegible]	23 12 24.2	[illegible]
16	19 33 33.72	[illegible]	23 3 38.8	[illegible]
17	19 36 5.36	[illegible]	22 54 44.7	[illegible]
18	19 38 36.55	[illegible]	22 45 42.0	[illegible]
19	19 41 7.29	[illegible]	22 36 30.9	[illegible]
20	19 43 37.57	[illegible]	22 27 11.4	[illegible]
21	19 46 7.39	[illegible]	22 17 43.7	[illegible]
22	19 48 36.75	[illegible]	22 8 7.9	[illegible]
23	19 51 5.64	[illegible]	S.21 58 24.1	[illegible]

WEDNESDAY 14.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	19 53 34.07	[illegible]	S.21 48 32.4	[illegible]
1	19 56 2.03	[illegible]	21 38 33.0	[illegible]
2	19 58 29.58	[illegible]	21 28 25.9	[illegible]
3	20 0 56.53	[illegible]	21 18 11.3	[illegible]
4	20 3 23.07	[illegible]	21 7 49.2	[illegible]
5	20 5 49.14	[illegible]	20 57 19.9	[illegible]
6	20 8 14.74	[illegible]	20 46 43.4	[illegible]
7	20 10 39.86	[illegible]	20 35 [illegible]	[illegible]
8	20 13 4.50	[illegible]	20 25 9.3	[illegible]
9	20 15 [illegible]	[illegible]	20 14 12.0	[illegible]
10	20 17 [illegible]	[illegible]	20 3 7.9	[illegible]
11	20 20 15.57	[illegible]	19 51 57.3	[illegible]
12	20 22 38.31	[illegible]	19 40 40.2	[illegible]
13	20 25 0.57	[illegible]	19 29 [illegible].7	[illegible]
14	20 27 [illegible]	[illegible]	19 17 47.0	[illegible]
15	20 29 [illegible]	[illegible]	19 6 11.2	[illegible]
16	20 32 4.52	[illegible]	18 54 [illegible]	[illegible]
17	20 34 [illegible]	[illegible]	18 42 41.5	[illegible]
18	20 36 [illegible]	[illegible]	18 30 [illegible]	[illegible]
19	20 39 [illegible]	[illegible]	18 18 [illegible]	[illegible]
20	20 41 [illegible]	[illegible]	18 6 44.1	[illegible]
21	20 43 [illegible]	[illegible]	17 54 [illegible]	[illegible]
22	20 45 [illegible]	[illegible]	17 42 [illegible]	[illegible]
23	20 48 [illegible]	[illegible]	17 29 57.7	[illegible]
24	20 50 [illegible]	[illegible]	S.17 17 [illegible]	[illegible]

THURSDAY 15.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	20 50 34.29	[illegible]	S.17 17 31.8	[illegible]
1	20 52 50.93	[illegible]	17 5 1.0	[illegible]
2	20 55 7.11	[illegible]	16 52 25.3	[illegible]
3	20 57 22.83	[illegible]	16 39 44.9	[illegible]
4	20 59 38.10	[illegible]	16 26 59.8	[illegible]
5	21 1 52.93	[illegible]	16 14 10.1	[illegible]
6	21 4 7.31	[illegible]	16 1 16.0	[illegible]
7	21 6 21.24	[illegible]	15 48 17.6	[illegible]
8	21 8 34.74	[illegible]	15 35 14.9	[illegible]
9	21 10 47.80	[illegible]	15 22 8.2	[illegible]
10	21 13 0.42	[illegible]	15 8 57.5	[illegible]
11	21 15 12.62	[illegible]	14 55 42.8	[illegible]
12	21 17 24.39	[illegible]	14 42 24.3	[illegible]
13	21 19 35.73	[illegible]	14 29 2.2	[illegible]
14	21 21 46.66	[illegible]	14 15 36.4	[illegible]
15	21 23 57.17	[illegible]	14 2 7.2	[illegible]
16	21 26 7.26	[illegible]	13 48 34.5	[illegible]
17	21 28 16.95	[illegible]	13 34 58.6	[illegible]
18	21 30 26.23	[illegible]	13 21 19.5	[illegible]
19	21 32 35.11	[illegible]	13 7 37.3	[illegible]
20	21 34 43.60	[illegible]	12 53 52.1	[illegible]
21	21 36 51.69	[illegible]	12 40 4.0	[illegible]
22	21 38 59.39	[illegible]	12 26 13.1	[illegible]
23	21 41 6.71	[illegible]	S.12 12 19.4	[illegible]

FRIDAY 16.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	21 43 13.65	[illegible]	S.11 58 23.8	[illegible]
1	21 45 20.22	[illegible]	11 44 24.5	[illegible]
2	21 47 26.41	[illegible]	11 30 23.3	[illegible]
3	21 49 32.23	[illegible]	11 16 19.8	[illegible]
4	21 51 37.69	[illegible]	11 2 14.0	[illegible]
5	21 53 42.80	[illegible]	10 48 6.1	[illegible]
6	21 55 47.55	[illegible]	10 33 56.1	[illegible]
7	21 57 51.95	[illegible]	10 19 44.1	[illegible]
8	21 59 56.01	[illegible]	10 5 30.2	[illegible]
9	22 1 59.73	[illegible]	9 51 14.5	[illegible]
10	22 4 3.11	[illegible]	9 36 57.1	[illegible]
11	22 6 6.17	[illegible]	9 22 38.0	[illegible]
12	22 8 8.90	[illegible]	9 8 17.4	[illegible]
13	22 10 11.31	[illegible]	8 53 55.3	[illegible]
14	22 12 13.40	[illegible]	8 39 31.8	[illegible]
15	22 14 15.18	[illegible]	8 25 7.0	[illegible]
16	22 16 [illegible]	[illegible]	8 10 41.0	[illegible]
17	22 18 [illegible]	[illegible]	7 56 13.8	[illegible]
18	22 20 [illegible].70	[illegible]	7 41 45.5	[illegible]
19	22 22 [illegible]	[illegible]	7 27 16.2	[illegible]
20	22 24 [illegible]	[illegible]	7 12 46.0	[illegible]
21	22 26 [illegible]	[illegible]	6 58 15.0	[illegible]
22	22 28 [illegible]	[illegible]	6 43 43.8	[illegible]
23	22 30 [illegible]	[illegible]	6 29 [illegible]	[illegible]
24	22 32 [illegible]	[illegible]	S.6 14 [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 17.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	22 32 17.98	1.9844	S. 6 14 37.5	14.557
1	22 34 16.91	1.9801	6 0 3.8	14.566
2	22 36 15.59	1.9758	5 45 29.6	14.573
3	22 38 14.01	1.9716	5 30 55.0	14.579
4	22 40 12.18	1.9675	5 16 20.1	14.584
5	22 42 10.11	1.9636	5 1 44.9	14.589
6	22 44 7.81	1.9597	4 47 9.4	14.593
7	22 46 5.27	1.9558	4 32 33.7	14.595
8	22 48 2.50	1.9520	4 17 58.0	14.595
9	22 49 59.51	1.9483	4 3 22.3	14.594
10	22 51 56.30	1.9447	3 48 46.7	14.593
11	22 53 52.88	1.9412	3 34 11.2	14.591
12	22 55 49.24	1.9377	3 19 35.8	14.587
13	22 57 45.40	1.9344	3 5 0.7	14.582
14	22 59 41.37	1.9312	2 50 25.9	14.577
15	23 1 37.14	1.9279	2 35 51.5	14.570
16	23 3 32.72	1.9248	2 21 17.5	14.562
17	23 5 28.12	1.9218	2 6 44.0	14.554
18	23 7 23.34	1.9188	1 52 11.0	14.544
19	23 9 18.38	1.9160	1 37 38.7	14.533
20	23 11 13.26	1.9132	1 23 7.0	14.522
21	23 13 7.97	1.9105	1 8 36.0	14.510
22	23 15 2.52	1.9078	0 54 5.8	14.497
23	23 16 56.91	1.9052	S. 0 39 36.4	14.482

SUNDAY 18.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	23 18 51.15	1.9028	S. 0 25 8.0	14.486
1	23 20 45.25	1.9005	S. 0 10 40.5	14.450
2	23 22 39.21	1.8982	N. 0 3 46.0	14.433
3	23 24 33.03	1.8959	0 18 11.5	14.416
4	23 26 26.72	1.8938	0 32 35.9	14.397
5	23 28 20.29	1.8918	0 46 59.1	14.377
6	23 30 13.73	1.8898	1 1 21.1	14.356
7	23 32 7.06	1.8879	1 15 41.8	14.334
8	23 34 0.28	1.8860	1 30 1.2	14.312
9	23 35 53.38	1.8842	1 44 19.3	14.289
10	23 37 46.38	1.8826	1 58 35.9	14.264
11	23 39 39.29	1.8810	2 12 51.0	14.240
12	23 41 32.10	1.8794	2 27 4.7	14.215
13	23 43 24.82	1.8780	2 41 16.8	14.188
14	23 45 17.46	1.8766	2 55 27.3	14.161
15	23 47 10.02	1.8753	3 9 36.1	14.132
16	23 49 2.50	1.8742	3 23 43.2	14.103
17	23 50 54.92	1.8731	3 37 48.5	14.074
18	23 52 47.27	1.8719	3 51 52.1	14.044
19	23 54 39.55	1.8709	4 5 53.8	14.012
20	23 56 31.78	1.8701	4 19 53.6	13.980
21	23 58 23.96	1.8693	4 33 51.4	13.947
22	0 0 16.09	1.8685	4 47 47.3	13.914
23	0 2 8.18	1.8677	5 1 41.1	13.880
24	0 4 0.22	1.8671	N. 5 15 32.9	13.846

MONDAY 19.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	0 4 0.22	1.8671	N. 5 15 32.9	13.846
1	0 5 52.23	1.8666	5 29 22.6	13.810
2	0 7 44.21	1.8662	5 43 10.1	13.773
3	0 9 36.17	1.8658	5 56 55.3	13.735
4	0 11 28.10	1.8654	6 10 38.3	13.697
5	0 13 20.02	1.8651	6 24 19.0	13.659
6	0 15 11.92	1.8649	6 37 57.4	13.620
7	0 17 3.81	1.8648	6 51 33.4	13.579
8	0 18 55.70	1.8648	7 5 6.9	13.538
9	0 20 47.59	1.8648	7 18 38.0	13.497
10	0 22 39.48	1.8649	7 32 6.6	13.455
11	0 24 31.38	1.8652	7 45 32.6	13.413
12	0 26 23.30	1.8654	7 58 56.1	13.369
13	0 28 15.23	1.8657	8 12 16.9	13.324
14	0 30 7.18	1.8660	8 25 35.0	13.280
15	0 31 59.15	1.8664	8 38 50.5	13.235
16	0 33 51.15	1.8670	8 52 3.2	13.188
17	0 35 43.19	1.8676	9 5 13.0	13.140
18	0 37 35.26	1.8682	9 18 20.0	13.092
19	0 39 27.37	1.8689	9 31 24.1	13.044
20	0 41 19.53	1.8697	9 44 25.3	12.996
21	0 43 11.73	1.8705	9 57 23.6	12.946
22	0 45 3.99	1.8715	10 10 18.8	12.895
23	0 46 56.31	1.8724	N. 10 23 11.0	12.844

TUESDAY 20.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	0 48 48.68	1.8734	N. 10 36 0.1	12.792
1	0 50 41.12	1.8746	10 48 46.1	12.740
2	0 52 33.63	1.8757	11 1 28.9	12.687
3	0 54 26.20	1.8769	11 14 8.5	12.633
4	0 56 18.85	1.8782	11 26 44.9	12.579
5	0 58 11.58	1.8796	11 39 18.0	12.524
6	1 0 4.40	1.8810	11 51 47.8	12.468
7	1 1 57.30	1.8824	12 4 14.2	12.412
8	1 3 50.29	1.8840	12 16 37.2	12.355
9	1 5 43.38	1.8856	12 28 56.8	12.297
10	1 7 36.57	1.8872	12 41 12.9	12.238
11	1 9 29.85	1.8888	12 53 25.4	12.179
12	1 11 23.23	1.8906	13 5 34.4	12.120
13	1 13 16.72	1.8925	13 17 39.8	12.059
14	1 15 10.33	1.8944	13 29 41.5	11.998
15	1 17 4.05	1.8963	13 41 39.6	11.937
16	1 18 57.89	1.8983	13 53 34.0	11.875
17	1 20 51.85	1.9003	14 5 24.6	11.812
18	1 22 45.93	1.9024	14 17 11.4	11.748
19	1 24 40.14	1.9046	14 28 54.4	11.684
20	1 26 34.48	1.9068	14 40 33.5	11.619
21	1 28 28.96	1.9091	14 52 6.7	11.553
22	1 30 23.57	1.9113	15 3 39.9	11.487
23	1 32 18.32	1.9137	15 15 7.1	11.420
24	1 34 13.22	1.9162	N. 15 26 30.3	11.352

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 21.

Hour.	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	1 34 13.22	[illegible]	N. 15 26 30.3	[illegible]
1	1 36 8.26	[illegible]	15 37 49.4	[illegible]
2	1 38 3.45	[illegible]	15 49 4.4	[illegible]
3	1 39 58.80	[illegible]	16 0 15.3	[illegible]
4	1 41 54.30	[illegible]	16 11 22.0	[illegible]
5	1 43 49.96	[illegible]	16 22 24.4	[illegible]
6	1 45 45.77	[illegible]	16 33 22.5	[illegible]
7	1 47 41.75	[illegible]	16 44 16.3	[illegible]
8	1 49 37.90	[illegible]	16 55 5.7	[illegible]
9	1 51 34.22	[illegible]	17 5 50.8	[illegible]
10	1 53 30.71	[illegible]	17 16 31.4	[illegible]
11	1 55 27.37	[illegible]	17 27 7.5	[illegible]
12	1 57 24.21	[illegible]	17 37 39.2	[illegible]
13	1 59 21.23	[illegible]	17 48 6.3	[illegible]
14	2 1 18.43	[illegible]	17 58 28.8	[illegible]
15	2 3 15.82	[illegible]	18 8 46.6	[illegible]
16	2 5 13.39	[illegible]	18 18 59.7	[illegible]
17	2 7 11.15	[illegible]	18 29 8.1	[illegible]
18	2 9 9.10	[illegible]	18 39 11.8	[illegible]
19	2 11 7.24	[illegible]	18 49 10.7	[illegible]
20	2 13 5.58	[illegible]	18 59 4.7	[illegible]
21	2 15 4.12	[illegible]	19 8 53.8	[illegible]
22	2 17 2.85	[illegible]	19 18 38.0	[illegible]
23	2 19 1.79	[illegible]	N. 19 28 17.2	[illegible]

THURSDAY 22.

Hour.	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	2 21 0.93	[illegible]	N. 19 37 51.4	[illegible]
1	2 23 0.27	[illegible]	19 47 20.6	[illegible]
2	2 24 59.82	[illegible]	19 56 44.6	[illegible]
3	2 26 59.58	[illegible]	20 6 3.5	[illegible]
4	2 28 59.55	[illegible]	20 15 17.2	[illegible]
5	2 30 59.73	[illegible]	20 24 25.7	[illegible]
6	2 33 0.13	[illegible]	20 33 28.9	[illegible]
7	2 35 0.74	[illegible]	20 42 26.8	[illegible]
8	2 37 1.57	[illegible]	20 51 19.3	[illegible]
9	2 39 2.61	[illegible]	21 0 6.5	[illegible]
10	2 41 3.87	[illegible]	21 8 48.2	[illegible]
11	2 43 5.35	[illegible]	21 17 24.4	[illegible]
12	2 45 7.05	[illegible]	21 25 55.2	[illegible]
13	2 47 8.97	[illegible]	21 34 20.4	[illegible]
14	2 49 11.11	[illegible]	21 42 [illegible]	[illegible]
15	2 51 13.48	[illegible]	21 50 [illegible]	[illegible]
16	2 53 16.[illegible]	[illegible]	21 5[illegible] 2.0	[illegible]
17	2 55 18.[illegible]	[illegible]	22 7 4.5	[illegible]
18	2 57 21.[illegible]	[illegible]	22 15 1.2	[illegible]
19	2 59 2[illegible]	[illegible]	22 22 52.1	[illegible]
20	3 1 2[illegible]	[illegible]	22 30 3[illegible]	[illegible]
21	3 3 32.42	[illegible]	22 3[illegible] 1[illegible]	[illegible]
22	3 5 3[illegible]	[illegible]	22 45 4[illegible]	[illegible]
23	3 7 4[illegible]	[illegible]	22 5[illegible] 1[illegible]	[illegible]
24	3 9 44.[illegible]	[illegible]	N. 23 0 [illegible]	[illegible]

FRIDAY 23.

Hour.	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	3 9 44.95	[illegible]	N. 23 0 37.7	[illegible]
1	3 11 49.58	[illegible]	23 7 52.8	[illegible]
2	3 13 54.44	[illegible]	23 15 1.8	[illegible]
3	3 15 59.53	[illegible]	23 22 4.6	[illegible]
4	3 18 4.85	[illegible]	23 29 1.2	[illegible]
5	3 20 10.40	[illegible]	23 35 51.5	[illegible]
6	3 22 16.17	[illegible]	23 42 35.6	[illegible]
7	3 24 22.17	[illegible]	23 49 13.4	[illegible]
8	3 26 28.40	[illegible]	23 55 44.8	[illegible]
9	3 28 34.85	[illegible]	24 2 9.7	[illegible]
10	3 30 41.53	[illegible]	24 8 28.2	[illegible]
11	3 32 48.43	[illegible]	24 14 40.2	[illegible]
12	3 34 55.56	[illegible]	24 20 45.7	[illegible]
13	3 37 2.91	[illegible]	24 26 44.6	[illegible]
14	3 39 10.48	[illegible]	24 32 36.9	[illegible]
15	3 41 18.27	[illegible]	24 38 22.6	[illegible]
16	3 43 26.28	[illegible]	24 44 1.6	[illegible]
17	3 45 34.51	[illegible]	24 49 33.8	[illegible]
18	3 47 42.96	[illegible]	24 54 59.2	[illegible]
19	3 49 51.62	[illegible]	25 0 17.8	[illegible]
20	3 52 0.50	[illegible]	25 5 29.5	[illegible]
21	3 54 9.59	[illegible]	25 10 34.4	[illegible]
22	3 56 18.89	[illegible]	25 15 32.4	[illegible]
23	3 58 28.40	[illegible]	N. 25 20 23.3	[illegible]

SATURDAY 24.

Hour.	Right Ascension h m s	Diff. for 1 Minute. s	Declination ° ′ ″	Diff. for 1 Minute. ″
0	4 0 38.11	[illegible]	N. 25 25 7.2	[illegible]
1	4 2 48.03	[illegible]	25 29 44.0	[illegible]
2	4 4 58.15	[illegible]	25 34 13.8	[illegible]
3	4 7 8.48	[illegible]	25 38 36.5	[illegible]
4	4 9 19.00	[illegible]	25 42 52.0	[illegible]
5	4 11 29.72	[illegible]	25 47 0.3	[illegible]
6	4 13 40.64	[illegible]	25 51 1.5	[illegible]
7	4 15 51.75	[illegible]	25 54 55.4	[illegible]
8	4 18 3.05	[illegible]	25 58 41.9	[illegible]
9	4 20 14.53	[illegible]	26 2 21.1	[illegible]
10	4 22 26.20	[illegible]	26 5 53.0	[illegible]
11	4 24 38.05	[illegible]	26 9 17.4	[illegible]
12	4 26 50.07	[illegible]	26 12 34.4	[illegible]
13	4 29 2.27	[illegible]	26 15 44.0	[illegible]
14	4 31 14.64	[illegible]	26 18 46.0	[illegible]
15	4 33 27.19	[illegible]	26 21 40.5	[illegible]
16	4 35 3[illegible]	[illegible]	26 24 2[illegible]	[illegible]
17	4 37 52.77	[illegible]	26 27 [illegible]	[illegible]
18	4 40 5.[illegible]	[illegible]	26 29 3[illegible]	[illegible]
19	4 42 1[illegible]	[illegible]	26 32 2.[illegible]	[illegible]
20	4 44 3[illegible]	[illegible]	26 34 1[illegible]	[illegible]
21	4 46 45.[illegible]	[illegible]	26 3[illegible] 2[illegible]	[illegible]
22	4 48 5[illegible] 45	[illegible]	26 3[illegible] 2[illegible]	[illegible]
23	4 51 13.22	[illegible]	26 40 21.9	[illegible]
24	4 53 27.14	[illegible]	N. 26 42 [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 25.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	4 53 27.14	2.2331	N.26 42 7.3	1.692
1	4 55 41.19	2.2352	26 43 44.9	1.562
2	4 57 55.37	2.2373	26 45 14.7	1.431
3	5 0 9.67	2.2394	26 46 36.6	1.300
4	5 2 24.10	2.2415	26 47 50.7	1.168
5	5 4 38.65	2.2434	26 48 56.8	1.036
6	5 6 53.31	2.2453	26 49 55.0	0.904
7	5 9 8.08	2.2471	26 50 45.3	0.771
8	5 11 22.96	2.2488	26 51 27.6	0.638
9	5 13 37.94	2.2505	26 52 1.9	0.505
10	5 15 53.02	2.2521	26 52 28.2	0.372
11	5 18 8.19	2.2536	26 52 46.5	0.238
12	5 20 23.45	2.2550	26 52 56.8	+ 0.104
13	5 22 38.79	2.2564	26 52 59.0	− 0.031
14	5 24 54.22	2.2578	26 52 53.1	0.165
15	5 27 9.73	2.2591	26 52 39.2	0.299
16	5 29 25.31	2.2602	26 52 17.2	0.435
17	5 31 40.95	2.2612	26 51 47.0	0.571
18	5 33 56.65	2.2622	26 51 8.7	0.706
19	5 36 12.41	2.2631	26 50 22.3	0.841
20	5 38 28.22	2.2640	26 49 27.8	0.977
21	5 40 44.09	2.2648	26 48 25.1	1.112
22	5 43 0.00	2.2655	26 47 14.3	1.248
23	5 45 15.95	2.2662	N.26 45 55.3	1.384

MONDAY 26.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	5 47 31.94	2.2667	N.26 44 28.2	1.520
1	5 49 47.96	2.2672	26 42 52.9	1.657
2	5 52 4.00	2.2676	26 41 9.4	1.793
3	5 54 20.07	2.2680	26 39 17.8	1.929
4	5 56 36.16	2.2682	26 37 18.0	2.066
5	5 58 52.25	2.2683	26 35 9.9	2.202
6	6 1 8.35	2.2684	26 32 53.7	2.338
7	6 3 24.46	2.2684	26 30 29.3	2.475
8	6 5 40.56	2.2683	26 27 56.7	2.611
9	6 7 56.66	2.2682	26 25 16.0	2.747
10	6 10 12.75	2.2680	26 22 27.1	2.883
11	6 12 28.82	2.2678	26 19 30.0	3.019
12	6 14 44.88	2.2675	26 16 24.8	3.155
13	6 17 0.92	2.2670	26 13 11.4	3.291
14	6 19 16.92	2.2664	26 9 49.9	3.427
15	6 21 32.89	2.2658	26 6 20.2	3.562
16	6 23 48.82	2.2652	26 2 42.4	3.697
17	6 26 4.71	2.2645	25 58 56.5	3.832
18	6 28 20.56	2.2637	25 55 2.5	3.967
19	6 30 36.36	2.2628	25 51 0.4	4.102
20	6 32 52.10	2.2618	25 46 50.2	4.237
21	6 35 7.78	2.2608	25 42 32.0	4.371
22	6 37 23.40	2.2598	25 38 5.7	4.505
23	6 39 38.96	2.2587	25 33 31.4	4.638
24	6 41 54.45	2.2576	N.25 28 49.1	4.772

TUESDAY 27.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	6 41 54.45	2.2576	N.25 28 49.1	4.772
1	6 44 9.87	2.2562	25 23 58.8	4.905
2	6 46 25.20	2.2548	25 19 0.5	5.038
3	6 48 40.45	2.2535	25 13 54.2	5.171
4	6 50 55.62	2.2521	25 8 40.0	5.303
5	6 53 10.70	2.2505	25 3 17.9	5.434
6	6 55 25.68	2.2489	24 57 47.9	5.566
7	6 57 40.57	2.2473	24 52 10.0	5.697
8	6 59 55.36	2.2456	24 46 24.3	5.827
9	7 2 10.04	2.2438	24 40 30.8	5.957
10	7 4 24.62	2.2421	24 34 29.5	6.086
11	7 6 39.09	2.2402	24 28 20.5	6.215
12	7 8 53.44	2.2383	24 22 3.7	6.344
13	7 11 7.68	2.2363	24 15 39.2	6.472
14	7 13 21.80	2.2343	24 9 7.1	6.599
15	7 15 35.79	2.2322	24 2 27.3	6.726
16	7 17 49.66	2.2301	23 55 39.9	6.853
17	7 20 3.40	2.2279	23 48 44.9	6.979
18	7 22 17.01	2.2257	23 41 42.4	7.104
19	7 24 30.49	2.2235	23 34 32.4	7.229
20	7 26 43.83	2.2212	23 27 14.9	7.354
21	7 28 57.03	2.2188	23 19 49.9	7.477
22	7 31 10.09	2.2165	23 12 17.6	7.600
23	7 33 23.01	2.2142	N.23 4 37.9	7.722

WEDNESDAY 28.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	7 35 35.79	2.2118	N.22 56 50.9	7.844
1	7 37 48.42	2.2093	22 48 56.6	7.965
2	7 40 0.90	2.2067	22 40 55.1	8.085
3	7 42 13.22	2.2041	22 32 46.4	8.205
4	7 44 25.39	2.2015	22 24 30.5	8.324
5	7 46 37.40	2.1989	22 16 7.5	8.443
6	7 48 49.26	2.1963	22 7 37.4	8.561
7	7 51 0.96	2.1937	21 59 0.2	8.677
8	7 53 12.50	2.1910	21 50 16.1	8.792
9	7 55 23.88	2.1882	21 41 25.1	8.907
10	7 57 35.09	2.1855	21 32 27.2	9.022
11	7 59 46.14	2.1828	21 23 22.4	9.137
12	8 1 57.03	2.1801	21 14 10.8	9.250
13	8 4 7.75	2.1773	21 4 52.4	9.362
14	8 6 18.30	2.1745	20 55 27.3	9.473
15	8 8 28.69	2.1717	20 45 55.6	9.583
16	8 10 38.91	2.1689	20 36 17.3	9.693
17	8 12 48.96	2.1660	20 26 32.4	9.802
18	8 14 58.83	2.1631	20 16 41.0	9.910
19	8 17 8.53	2.1603	20 6 43.2	10.017
20	8 19 18.07	2.1575	19 56 38.9	10.124
21	8 21 27.43	2.1546	19 46 28.3	10.229
22	8 23 36.62	2.1517	19 36 11.4	10.334
23	8 25 45.64	2.1489	19 25 48.2	10.438
24	8 27 54.49	2.1461	N.19 15 18.8	10.541

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 29.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	8 27 54.49	[illegible]	N 19 15 18.8	[illegible]
1	8 30 3.17	[illegible]	19 4 43.3	[illegible]
2	8 32 11.67	[illegible]	18 54 1.7	[illegible]
3	8 34 20.00	[illegible]	18 43 14.0	[illegible]
4	8 36 28.16	[illegible]	18 32 20.4	[illegible]
5	8 38 36.15	[illegible]	18 21 20.9	[illegible]
6	8 40 43.98	[illegible]	18 10 15.5	[illegible]
7	8 42 51.64	[illegible]	17 59 4.3	[illegible]
8	8 44 59.12	[illegible]	17 47 47.3	[illegible]
9	8 47 6.43	[illegible]	17 36 24.7	[illegible]
10	8 49 13.5[illegible]	[illegible]	17 24 56.4	[illegible]
11	8 51 20.56	[illegible]	17 13 22.5	[illegible]
12	8 53 27.37	[illegible]	17 1 43.8	[illegible]
13	8 55 34.02	[illegible]	16 49 58.4	[illegible]
14	8 57 40.51	[illegible]	16 38 8.1	[illegible]
15	8 59 46.83	[illegible]	16 26 12.5	[illegible]
16	9 1 52.99	[illegible]	16 14 11.7	[illegible]
17	9 3 [illegible]	[illegible]	16 2 5.6	[illegible]
18	9 6 4.[illegible]4	[illegible]	15 49 54.4	[illegible]
19	9 8 10.53	[illegible]	15 37 3[illegible].1	[illegible]
20	9 10 16.07	[illegible]	15 25 16.7	[illegible]
21	9 12 21.45	[illegible]	15 12 50.4	[illegible]
22	9 14 26.6[illegible]	[illegible]	15 0 19.2	[illegible]
23	9 16 31.76	[illegible]	N.14 47 43.1	[illegible]

FRIDAY 30.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	9 18 36.69	[illegible]	N.14 35 2.3	[illegible]
1	9 20 41.48	[illegible]	14 22 16.[illegible]	[illegible]
2	9 22 46.12	[illegible]	14 9 2[illegible]	[illegible]
3	9 24 50.62	[illegible]	13 56 31.7	[illegible]
4	9 2[illegible] 54.[illegible]	[illegible]	13 43 32.3	[illegible]
5	9 2[illegible] [illegible]	[illegible]	13 30 2[illegible]	[illegible]
6	9 31 3.29	[illegible]	13 17 20.3	[illegible]
7	9 [illegible] 7.24	[illegible]	13 4 7.7	[illegible]
8	9 35 11.[illegible]	[illegible]	12 5[illegible] 50.9	[illegible]
9	9 37 14.76	[illegible]	12 37 [illegible]	[illegible]
10	9 3[illegible] 1[illegible]	[illegible]	12 24 4.7	[illegible]
11	9 41 21.[illegible]	[illegible]	12 10 35.4	[illegible]
12	9 43 25.10	[illegible]	11 57 2.2	[illegible]
13	9 45 2[illegible]	[illegible]	11 43 25.0	[illegible]
14	9 4[illegible] 31.40	[illegible]	11 2[illegible] 41.[illegible]	[illegible]
15	9 4[illegible] [illegible]	[illegible]	11 15 5[illegible]	[illegible]
16	9 51 3[illegible].25	[illegible]	11 2 10.4	[illegible]
17	9 53 4[illegible]	[illegible]	10 4[illegible] 1[illegible].1	[illegible]
18	9 55 42.[illegible]9	[illegible]	10 34 22.2	[illegible]
19	9 57 45.[illegible]	[illegible]	10 [illegible] 22.7	[illegible]
20	9 5[illegible] 47.73	[illegible]	10 6 1[illegible].7	[illegible]
21	10 1 [illegible]	[illegible]	9 52 13.4	[illegible]
22	10 3 [illegible]	[illegible]	9 3[illegible] 3.7	[illegible]
23	10 5 [illegible]	[illegible]	9 23 5[illegible].7	[illegible]
24	10 7 [illegible]	[illegible]	N. 9 9 34.6	[illegible]

SATURDAY 31.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	10 7 56.69	[illegible]	N. 9 9 34.6	[illegible]
1	10 9 5[illegible].72	[illegible]	8 55 15.3	[illegible]
2	10 12 0.67	[illegible]	8 40 52.9	[illegible]
3	10 14 2.55	[illegible]	8 26 27.6	[illegible]
4	10 16 4.36	[illegible]	8 11 59.4	[illegible]
5	10 18 6.10	[illegible]	7 57 28.2	[illegible]
6	10 20 7.78	[illegible]	7 42 54.2	[illegible]
7	10 22 9.39	[illegible]	7 28 17.5	[illegible]
8	10 24 10.95	[illegible]	7 13 38.2	[illegible]
9	10 26 12.46	[illegible]	6 58 56.3	[illegible]
10	10 28 13.92	[illegible]	6 44 11.9	[illegible]
11	10 30 15.34	[illegible]	6 29 25.0	[illegible]
12	10 32 16.71	[illegible]	6 14 35.8	[illegible]
13	10 34 18.04	[illegible]	5 59 44.3	[illegible]
14	10 36 19.34	[illegible]	5 44 50.5	[illegible]
15	10 38 20.62	[illegible]	5 29 54.6	[illegible]
16	10 40 21.87	[illegible]	5 14 56.6	[illegible]
17	10 42 23.10	[illegible]	4 59 56.6	[illegible]
18	10 44 24.30	[illegible]	4 44 54.6	[illegible]
19	10 46 25.49	[illegible]	4 29 50.8	[illegible]
20	10 48 26.6[illegible]	[illegible]	4 14 45.2	[illegible]
21	10 50 27.86	[illegible]	3 59 37.8	[illegible]
22	10 52 29.04	[illegible]	3 44 28.8	[illegible]
23	10 54 30.22	[illegible]	N 3 29 18.2	[illegible]

SUNDAY, AUGUST 1.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	10 56 31.40	[illegible]	N. 3 14 6.0	[illegible]

PHASES OF THE MOON.

			d	h	m
☽	First Quarter	July	7	1	32.0
○	Full Moon		13	16	52.3
☾	Last Quarter		21	3	8.2
●	New Moon		29	3	57.8

			d	h
☾	Perigee	July	11	5.2
☾	Apogee		23	2.7

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	15 47 4	3198	17 13 16	3183	18 39 45	3168	20 6 32	3155
	Jupiter	E.	40 29 56	2887	38 57 21	2881	37 24 38	2874	35 51 46	2867
	Spica	E.	86 51 24	2815	85 17 16	2808	83 42 58	2799	82 8 29	2790
2	Sun	W.	27 24 22	3094	28 52 39	3082	30 21 10	3072	31 49 54	3062
	Spica	E.	74 13 13	2747	72 37 36	2738	71 1 47	2730	69 25 47	2722
	Saturn	E.	106 26 27	2764	104 51 12	2754	103 15 44	2745	101 40 4	2736
3	Sun	W.	39 16 50	3009	40 46 52	2998	42 17 7	2988	43 47 35	2977
	Spica	E.	61 22 53	2678	59 45 43	2669	58 8 21	2660	56 30 47	2651
	Saturn	E.	93 38 42	2690	92 1 49	2681	90 24 44	2672	88 47 27	2663
4	Sun	W.	51 23 11	2925	52 54 58	2915	54 26 58	2904	55 59 12	2894
	Spica	E.	48 19 58	2607	46 41 12	2597	45 2 13	2589	43 23 3	2580
	Saturn	E.	80 37 58	2618	78 59 28	2609	77 20 45	2600	75 41 50	2591
	Antares	E.	94 4 53	2596	92 25 52	2585	90 46 37	2576	89 7 9	2566
5	Sun	W.	63 43 45	2839	65 17 22	2829	66 51 12	2818	68 25 16	2807
	Saturn	E.	67 24 9	2546	65 44 0	2538	64 3 39	2528	62 23 5	2520
	Antares	E.	80 46 29	2517	79 5 40	2507	77 24 37	2498	75 43 21	2487
6	Sun	W.	76 19 14	2752	77 54 45	2741	79 30 31	2730	81 6 31	2719
	Regulus	W.	32 48 10	2450	34 30 34	2438	36 13 14	2427	37 56 10	2416
	Mars	W.	32 36 25	2653	34 14 8	2640	35 52 8	2629	37 30 23	2617
	Saturn	E.	53 57 22	2479	52 15 39	2472	50 33 46	2464	48 51 42	2457
	Antares	E.	67 13 24	2437	65 30 42	2426	63 47 45	2417	62 4 34	2406
7	Sun	W.	89 10 13	2663	90 47 42	2653	92 25 25	2642	94 3 23	2631
	Regulus	W.	46 34 44	2362	48 19 13	2352	50 3 57	2342	51 48 56	2331
	Mars	W.	45 45 40	2560	47 25 30	2548	49 5 36	2538	50 45 57	2526
	Antares	E.	53 24 57	2355	51 40 17	2345	49 55 23	2335	48 10 14	2325
	α Aquilæ	E.	105 59 36	3020	104 29 48	3000	102 59 35	2981	101 28 58	2962
8	Sun	W.	102 16 50	2579	103 56 14	2569	105 35 52	2559	107 15 43	2549
	Regulus	W.	60 37 33	2281	62 24 0	2272	64 10 41	2263	65 57 35	2253
	Mars	W.	59 11 27	2474	60 53 17	2465	62 35 20	2455	64 17 37	2445
	Jupiter	W.	51 54 26	2344	53 39 22	2333	55 24 33	2324	57 9 58	2315
	Antares	E.	39 20 55	2277	37 34 21	2267	35 47 33	2258	34 0 32	2249
	α Aquilæ	E.	93 50 41	2891	92 18 10	2880	90 45 25	2869	89 12 27	2862
9	Regulus	W.	74 55 24	2211	76 43 35	2204	78 31 57	2196	80 20 31	2189
	Mars	W.	72 52 18	2401	74 35 51	2393	76 19 36	2385	78 3 32	2378
	Jupiter	W.	66 0 23	2270	67 47 6	2262	69 34 1	2255	71 21 7	2247
	α Aquilæ	E.	81 25 29	2834	79 51 51	2838	78 18 12	2838	76 44 34	2842
	Fomalhaut	E.	105 50 4	2608	104 11 20	2594	102 32 17	2581	100 52 56	2569
10	Regulus	W.	89 25 47	2159	91 15 16	2154	93 4 53	2149	94 54 37	2145
	Mars	W.	86 45 40	2346	88 30 32	2342	90 15 31	2337	92 0 37	2333
	Jupiter	W.	80 19 10	2216	82 7 13	2212	83 55 23	2207	85 43 40	2203
	Spica	W.	35 25 13	2173	37 14 21	2167	39 3 39	2161	40 53 6	2155
	α Aquilæ	E.	68 58 5	2883	67 25 24	2898	65 53 2	2915	64 21 2	2935
	Fomalhaut	E.	92 32 40	2527	90 52 5	2522	89 11 22	2517	87 30 33	2515

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XV^h.	P.L. of Diff.	XVIII^h.	P.L. of Diff.	XXI^h.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	21 33 35	[illegible]	23 0 54	[illegible]	24 28 29	[illegible]	25 56 19	[illegible]
	Jupiter	E.	34 18 45	[illegible]	32 45 36	[illegible]	31 12 20	[illegible]	29 38 57	[illegible]
	Spica	E.	80 33 48	[illegible]	78 58 56	[illegible]	77 23 53	[illegible]	75 48 39	[illegible]
2	Sun	W.	33 18 51	[illegible]	34 48 2	[illegible]	36 17 25	[illegible]	37 47 1	[illegible]
	Spica	E.	67 49 36	[illegible]	66 13 13	[illegible]	64 36 35	[illegible]	62 59 51	[illegible]
	Saturn	E.	100 4 12	[illegible]	98 28 8	[illegible]	96 51 51	[illegible]	95 15 23	[illegible]
3	Sun	W.	45 18 16	[illegible]	46 49 10	[illegible]	48 20 17	[illegible]	49 51 37	[illegible]
	Spica	E.	54 53 1	[illegible]	53 15 4	[illegible]	51 36 54	[illegible]	49 58 32	[illegible]
	Saturn	E.	87 9 58	[illegible]	85 32 16	[illegible]	83 54 22	[illegible]	82 16 16	[illegible]
4	Sun	W.	57 31 39	[illegible]	59 4 20	[illegible]	60 37 14	[illegible]	62 10 23	[illegible]
	Spica	E.	41 43 40	[illegible]	40 4 5	[illegible]	38 24 19	[illegible]	36 44 21	[illegible]
	Saturn	E.	74 2 42	[illegible]	72 23 22	[illegible]	70 43 50	[illegible]	69 4 6	[illegible]
	Antares	E.	87 27 28	[illegible]	85 47 34	[illegible]	84 7 26	[illegible]	82 27 4	[illegible]
5	Sun	W.	69 59 35	[illegible]	71 34 8	[illegible]	73 8 56	[illegible]	74 43 58	[illegible]
	Saturn	E.	60 42 20	[illegible]	59 1 23	[illegible]	57 20 14	[illegible]	55 38 54	[illegible]
	Antares	E.	74 1 50	[illegible]	72 20 5	[illegible]	70 38 6	[illegible]	68 55 52	[illegible]
6	Sun	W.	82 42 46	[illegible]	84 19 16	[illegible]	85 56 0	[illegible]	87 32 59	[illegible]
	Regulus	W.	39 39 22	[illegible]	41 22 49	[illegible]	43 6 32	[illegible]	44 50 30	[illegible]
	Mars	W.	39 8 55	[illegible]	40 47 43	[illegible]	42 26 46	[illegible]	44 6 5	[illegible]
	Saturn	E.	47 9 25	[illegible]	45 27 5	[illegible]	43 44 33	[illegible]	42 1 53	[illegible]
	Antares	E.	60 21 8	[illegible]	58 37 27	[illegible]	56 53 32	[illegible]	55 9 22	[illegible]
7	Sun	W.	95 41 36	[illegible]	97 20 3	[illegible]	98 58 44	[illegible]	100 37 40	[illegible]
	Regulus	W.	53 34 10	[illegible]	55 19 [illegible]	[illegible]	57 5 22	[illegible]	58 51 20	[illegible]
	Mars	W.	52 26 34	[illegible]	54 7 25	[illegible]	55 48 31	[illegible]	57 29 52	[illegible]
	Antares	E.	46 24 51	[illegible]	44 [illegible]	[illegible]	42 53 21	[illegible]	41 7 15	[illegible]
	α Aquilæ	E.	99 57 5[illegible]	[illegible]	98 26 37	[illegible]	96 54 56	[illegible]	95 22 57	[illegible]
8	Sun	W.	108 55 48	[illegible]	110 36 6	[illegible]	112 16 36	[illegible]	113 57 19	[illegible]
	Regulus	W.	67 44 41	[illegible]	[illegible] 32 4	[illegible]	71 19 35	[illegible]	73 7 25	[illegible]
	Mars	W.	66 0 7	[illegible]	67 42 51	[illegible]	69 25 47	[illegible]	71 8 56	[illegible]
	Jupiter	W.	58 55 36	[illegible]	60 41 2[illegible]	[illegible]	62 27 34	[illegible]	64 13 52	[illegible]
	Antares	E.	32 13 17	[illegible]	30 25 49	[illegible]	28 38 9	[illegible]	26 50 16	[illegible]
	α Aquilæ	E.	87 33 17	[illegible]	86 6 1	[illegible]	84 32 36	[illegible]	82 57 5	[illegible]
9	Regulus	W.	82 9 15	[illegible]	83 58 9	[illegible]	85 47 13	[illegible]	87 36 26	[illegible]
	Mars	W.	79 47 38	[illegible]	81 31 55	[illegible]	83 16 21	[illegible]	85 0 56	[illegible]
	Jupiter	W.	73 8 24	[illegible]	74 55 52	[illegible]	76 43 29	[illegible]	78 31 15	[illegible]
	α Aquilæ	E.	75 11 0	[illegible]	73 37 51	[illegible]	72 4 11	[illegible]	70 31 1	[illegible]
	Fomalhaut	E.	99 13 19	[illegible]	97 33 2[illegible]	[illegible]	95 53 23	[illegible]	94 13 7	[illegible]
10	Regulus	W.	96 44 2[illegible]	[illegible]	98 14 23	[illegible]	100 24 31	[illegible]	102 14 27	[illegible]
	Mars	W.	[illegible] 45 4[illegible]	[illegible]	95 31 5	[illegible]	97 16 2[illegible]	[illegible]	99 1 51	[illegible]
	Jupiter	W.	[illegible]	[illegible]	89 20 32	[illegible]	91 9 5	[illegible]	92 57 42	[illegible]
	Spica	W.	42 42 41	[illegible]	44 32 23	[illegible]	46 22 11	[illegible]	48 12 4	[illegible]
	α Aquilæ	E.	62 47 25	[illegible]	61 15 21	[illegible]	59 47 50	[illegible]	58 17 54	[illegible]
	Fomalhaut	E.	85 47 41	[illegible]	84 8 44	[illegible]	82 27 48	[illegible]	80 46 52	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	IIIh. ° ′ ″	P. L. of Diff.	VIh. ° ′ ″	P. L. of Diff.	IXh. ° ′ ″	P. L. of Diff.
11	JUPITER	W.	94 46 22	2190	96 35 5	2189	98 23 49	2188	100 12 35	2188
	Spica	W.	50 2 1	2138	51 52 2	2137	53 42 5	2136	55 32 10	2135
	α Aquilæ	E.	56 48 41	3086	55 20 14	3129	53 52 39	3176	52 26 1	3230
	Fomalhaut	E.	79 5 59	2518	77 25 11	2522	75 44 28	2527	74 3 53	2535
	α Pegasi	E.	100 25 55	2296	98 39 49	2293	96 53 39	2291	95 7 26	2290
12	Spica	W.	64 42 31	2141	66 32 28	2143	68 22 21	2147	70 12 9	2152
	SATURN	W.	33 18 21	2235	35 5 57	2228	36 53 43	2223	38 41 36	2220
	Antares	W.	18 50 57	2133	20 41 6	2136	22 31 10	2140	24 21 8	2144
	Fomalhaut	E.	65 44 16	2596	64 5 15	2614	62 26 39	2634	60 48 30	2656
	α Pegasi	E.	86 16 23	2297	84 30 19	2301	82 44 21	2307	80 58 31	2312
13	Spica	W.	79 19 17	2180	81 8 15	2188	82 57 1	2196	84 45 35	2204
	SATURN	W.	47 41 18	2227	49 29 5	2231	51 16 46	2237	53 4 19	2243
	Antares	W.	33 29 7	2174	35 18 14	2181	37 7 10	2189	38 55 54	2198
	Fomalhaut	E.	52 46 22	2809	51 12 6	2850	49 38 43	2895	48 6 18	2946
	α Pegasi	E.	72 11 55	2356	70 27 17	2367	68 42 55	2380	66 58 52	2394
14	Spica	W.	93 45 1	2254	95 32 8	2266	97 18 57	2278	99 5 29	2291
	SATURN	W.	61 59 27	2284	63 45 50	2294	65 31 58	2305	67 17 50	2317
	Antares	W.	47 56 5	2248	49 43 21	2260	51 30 19	2272	53 17 0	2284
	α Pegasi	E.	58 24 2	2480	56 42 21	2502	55 1 10	2524	53 20 30	2548
	α Arietis	E.	100 2 8	2263	98 15 14	2274	96 28 37	2287	94 42 18	2299
15	SATURN	W.	76 2 45	2381	77 46 47	2395	79 30 29	2410	81 13 50	2424
	Antares	W.	62 5 42	2352	63 50 26	2366	65 34 49	2381	67 18 51	2396
	α Arietis	E.	85 55 24	2366	84 11 1	2382	82 27 0	2396	80 43 20	2411
	Aldebaran	E.	117 57 25	2435	116 14 40	2447	114 32 12	2460	112 50 2	2470
16	SATURN	W.	89 45 12	2503	91 26 21	2519	93 7 8	2535	94 47 32	2553
	Antares	W.	75 53 29	2475	77 35 17	2492	79 16 42	2508	80 57 44	2525
	α Arietis	E.	72 10 31	2492	70 29 6	2508	68 48 4	2525	67 7 26	2542
	Aldebaran	E.	104 24 0	2545	102 43 49	2560	101 3 59	2576	99 24 31	2591
	VENUS	E.	104 45 51	2853	103 12 32	2870	101 39 35	2887	100 7 0	2905
17	Antares	W.	89 17 9	2608	90 55 53	2624	92 34 15	2640	94 12 15	2657
	α Aquilæ	W.	44 4 2	4101	45 14 3	4032	46 25 11	3973	47 37 17	3921
	α Arietis	E.	58 50 8	2628	57 11 51	2646	55 33 58	2665	53 56 28	2681
	Aldebaran	E.	91 12 38	2673	89 35 22	2690	87 58 29	2707	86 21 58	2724
	VENUS	E.	92 29 44	2994	90 59 24	3013	89 29 27	3030	87 59 52	3048
18	Antares	W.	102 16 42	2738	103 52 31	2753	105 28 0	2769	107 3 8	2784
	α Aquilæ	W.	53 48 57	3745	55 4 57	3721	56 21 22	3701	57 38 8	3684
	α Arietis	E.	45 54 49	2767	44 19 38	2784	42 44 49	2801	41 10 23	2819
	Aldebaran	E.	78 24 56	2807	76 50 37	2823	75 16 39	2839	73 43 2	2856
	VENUS	E.	80 37 26	3137	79 10 1	3154	77 42 57	3172	76 16 14	3188
	SUN	E.	125 35 1	3075	124 6 21	3091	122 38 1	3108	121 10 1	3124
19	α Aquilæ	W.	64 5 43	3631	65 23 44	3624	66 41 52	3621	68 0 4	3617
	Fomalhaut	W.	39 23 35	3898	40 36 57	3847	41 51 11	3802	43 6 11	3764
	α Arietis	E.	33 23 51	2906	31 51 40	2924	30 19 52	2942	28 48 27	2962
	Aldebaran	E.	66 0 10	2935	64 28 36	2950	62 57 21	2966	61 26 26	2982

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XV^h.	P.L. of Diff.	XVIII^h.	P.L. of Diff.	XXI^h.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
11	JUPITER	W.	102 1 20	[illegible]	103 50 4	[illegible]	105 38 47	[illegible]	107 27 27	[illegible]
	Spica	W.	57 22 16	[illegible]	59 12 22	[illegible]	61 2 27	[illegible]	62 52 30	[illegible]
	α Aquilæ	E.	51 0 27	[illegible]	49 36 3	[illegible]	48 12 56	[illegible]	46 51 14	[illegible]
	Fomalhaut	E.	72 23 29	[illegible]	70 43 17	[illegible]	69 3 19	[illegible]	67 23 38	[illegible]
	α Pegasi	E.	93 21 12	[illegible]	91 34 57	[illegible]	89 48 43	[illegible]	88 2 31	[illegible]
12	Spica	W.	72 1 50	[illegible]	73 51 24	[illegible]	75 40 51	[illegible]	77 30 9	[illegible]
	SATURN	W.	40 29 33	[illegible]	42 17 32	[illegible]	44 5 30	[illegible]	45 53 26	[illegible]
	Antares	W.	26 11 0	[illegible]	28 0 45	[illegible]	29 50 21	[illegible]	31 39 49	[illegible]
	Fomalhaut	E.	59 10 51	[illegible]	57 33 45	[illegible]	55 57 16	[illegible]	54 21 27	[illegible]
	α Pegasi	E.	79 12 49	[illegible]	77 27 17	[illegible]	75 41 57	[illegible]	73 56 49	[illegible]
13	Spica	W.	86 33 57	[illegible]	88 22 5	[illegible]	90 9 59	[illegible]	91 57 38	[illegible]
	SATURN	W.	54 51 43	[illegible]	56 38 57	[illegible]	58 25 59	[illegible]	60 12 50	[illegible]
	Antares	W.	40 44 25	[illegible]	42 32 42	[illegible]	44 20 45	[illegible]	46 8 33	[illegible]
	Fomalhaut	E.	46 34 57	[illegible]	45 4 45	[illegible]	43 35 49	[illegible]	42 8 16	[illegible]
	α Pegasi	E.	65 15 8	[illegible]	63 31 46	[illegible]	61 48 46	[illegible]	60 6 11	[illegible]
14	Spica	W.	100 51 42	[illegible]	102 37 37	[illegible]	104 23 12	[illegible]	106 8 27	[illegible]
	SATURN	W.	69 3 25	[illegible]	70 48 43	[illegible]	72 33 42	[illegible]	74 18 23	[illegible]
	Antares	W.	55 3 23	[illegible]	56 49 27	[illegible]	58 35 12	[illegible]	60 20 37	[illegible]
	α Pegasi	E.	51 40 24	[illegible]	50 0 54	[illegible]	48 22 2	[illegible]	46 43 51	[illegible]
	α Arietis	E.	92 56 17	[illegible]	91 10 34	[illegible]	89 25 11	[illegible]	87 40 7	[illegible]
15	SATURN	W.	82 56 50	[illegible]	84 39 28	[illegible]	86 21 45	[illegible]	88 3 40	[illegible]
	Antares	W.	69 2 31	[illegible]	70 45 49	[illegible]	72 28 45	[illegible]	74 11 18	[illegible]
	α Arietis	E.	79 0 1	[illegible]	77 17 5	[illegible]	75 34 31	[illegible]	73 52 19	[illegible]
	Aldebaran	E.	111 8 10	[illegible]	109 26 38	[illegible]	107 45 25	[illegible]	106 4 32	[illegible]
16	SATURN	W.	96 27 32	[illegible]	98 7 9	[illegible]	99 46 22	[illegible]	101 25 12	[illegible]
	Antares	W.	82 38 23	[illegible]	84 18 39	[illegible]	85 58 32	[illegible]	87 38 2	[illegible]
	α Arietis	E.	65 27 11	[illegible]	63 47 20	[illegible]	62 7 52	[illegible]	60 28 48	[illegible]
	Aldebaran	E.	97 45 24	[illegible]	96 6 40	[illegible]	94 28 17	[illegible]	92 50 16	[illegible]
	VENUS	E.	98 34 48	[illegible]	97 2 58	[illegible]	95 31 31	[illegible]	94 0 26	[illegible]
17	Antares	W.	95 49 52	[illegible]	97 27 7	[illegible]	99 4 0	[illegible]	100 40 32	[illegible]
	α Aquilæ	W.	48 50 15	[illegible]	50 3 57	[illegible]	51 18 24	[illegible]	52 33 24	[illegible]
	α Arietis	E.	52 19 22	[illegible]	50 42 39	[illegible]	49 6 19	[illegible]	47 30 23	[illegible]
	Aldebaran	E.	84 45 50	[illegible]	83 10 3	[illegible]	81 34 39	[illegible]	79 59 37	[illegible]
	VENUS	E.	86 30 39	[illegible]	85 1 48	[illegible]	83 33 19	[illegible]	82 5 12	[illegible]
18	Antares	W.	108 37 57	[illegible]	110 12 26	[illegible]	111 46 37	[illegible]	113 20 29	[illegible]
	α Aquilæ	W.	58 55 12	[illegible]	60 12 32	[illegible]	61 30 5	[illegible]	62 47 49	[illegible]
	α Arietis	E.	39 30 20	[illegible]	38 2 37	[illegible]	36 29 21	[illegible]	34 56 25	[illegible]
	Aldebaran	E.	72 9 47	[illegible]	70 36 52	[illegible]	69 4 18	[illegible]	67 32 4	[illegible]
	VENUS	E.	74 49 51	[illegible]	73 23 40	[illegible]	71 58 4	[illegible]	70 32 40	[illegible]
	SUN	E.	119 42 21	[illegible]	118 15 1	[illegible]	116 47 59	[illegible]	115 21 16	[illegible]
19	α Aquilæ	W.	69 18 20	[illegible]	70 36 38	[illegible]	71 54 58	[illegible]	73 13 19	[illegible]
	Fomalhaut	W.	44 21 51	[illegible]	45 38 7	[illegible]	46 54 56	[illegible]	48 12 13	[illegible]
	α Arietis	E.	27 17 25	[illegible]	25 46 47	[illegible]	24 16 36	[illegible]	22 46 53	[illegible]
	Aldebaran	E.	59 55 50	[illegible]	58 25 33	[illegible]	56 55 34	[illegible]	55 25 54	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	Venus	E.	69 7 34	3270	67 42 47	3285	66 18 18	3300	64 54 7	[illegible]
	Sun	E.	113 54 51	3208	112 28 44	3216	111 2 54	3231	109 37 21	3243
20	α Aquilæ	W.	74 31 39	3614	75 49 58	3615	77 8 16	3618	78 26 31	3620
	Fomalhaut	W.	49 29 55	3628	50 47 59	3609	52 6 24	3593	53 25 6	3578
	Aldebaran	E.	53 56 32	3056	52 27 28	3070	50 58 42	3085	49 30 14	3099
	Venus	E.	57 57 16	3384	56 34 41	3396	55 12 20	3408	53 50 13	3421
	Sun	E.	102 33 26	3306	101 9 22	3318	99 45 31	3328	98 21 52	3338
21	α Aquilæ	W.	84 56 59	3638	86 14 52	3643	87 32 40	3648	88 50 23	3653
	Fomalhaut	W.	60 2 1	3526	61 21 56	3519	62 41 59	3513	64 2 9	3506
	α Pegasi	W.	37 16 1	3481	38 36 46	3460	39 57 55	3440	41 19 26	3425
	Aldebaran	E.	42 12 21	3175	40 45 42	3191	39 19 22	3208	37 53 22	3225
	Venus	E.	47 2 57	3476	45 42 6	3487	44 21 27	3497	43 0 59	3506
	Sun	E.	91 26 23	3383	90 3 47	3389	88 41 18	3397	87 18 58	3402
22	α Aquilæ	W.	95 17 29	3682	96 34 35	3689	97 51 34	3695	99 8 26	3703
	Fomalhaut	W.	70 44 36	3481	72 5 21	3478	73 26 10	3473	74 47 4	3470
	α Pegasi	W.	48 11 22	3358	49 34 27	3348	50 57 43	3339	52 21 9	3330
	Venus	E.	36 21 17	3553	35 1 51	3565	33 42 36	3573	32 23 32	3583
	Sun	E.	80 28 50	3426	79 7 3	3430	77 45 20	3431	76 23 39	3434
23	Fomalhaut	W.	81 32 32	3453	82 53 49	3450	84 15 9	3446	85 36 33	3443
	α Pegasi	W.	59 20 43	3293	60 45 3	3285	62 9 32	3278	63 34 9	3271
	Sun	E.	69 35 41	3438	68 14 7	3436	66 52 31	3435	65 30 54	3433
24	Fomalhaut	W.	92 24 27	3428	93 46 12	3425	95 8 0	3422	96 29 52	3420
	α Pegasi	W.	70 39 16	3236	72 4 42	3229	73 30 17	3221	74 56 1	3214
	α Arietis	W.	27 14 25	3121	28 42 9	3111	30 10 5	3101	31 38 13	3092
	Sun	E.	58 42 8	3417	57 20 11	3413	55 58 9	3408	54 36 1	3404
25	α Pegasi	W.	82 6 51	3177	83 33 28	3168	85 0 15	3160	86 27 12	[illegible]
	α Arietis	W.	39 1 41	3047	40 30 56	3038	42 0 22	3029	43 29 59	3020
	Sun	E.	47 43 42	3370	46 20 51	3363	44 57 52	3355	43 34 44	3346
26	α Pegasi	W.	93 44 22	3111	95 12 18	3104	96 40 23	3095	98 8 39	3087
	α Arietis	W.	51 0 59	2972	52 31 47	2962	54 2 48	2951	55 34 2	2942
	Sun	E.	36 36 35	3301	35 12 25	3292	33 48 4	3282	32 23 31	3272
27	α Arietis	W.	63 13 24	2890	64 45 56	2879	66 18 42	2868	67 51 42	2857
	Aldebaran	W.	32 2 12	3104	33 30 17	3075	34 58 57	3049	36 28 9	3025
	Sun	E.	25 17 46	3219	23 51 59	3208	22 25 59	3197	20 59 46	3185
30	Sun	W.	10 4 20	2948	11 35 38	2938	13 7 9	2927	14 38 53	2917
	Spica	E.	64 51 32	2629	63 13 16	2619	61 34 47	2610	59 56 5	2601
	Saturn	E.	96 37 9	2656	94 59 30	2646	93 21 37	2636	91 43 31	2626
	Antares	E.	110 38 30	2621	109 0 3	2611	107 21 23	2601	105 42 30	[illegible]
31	Sun	W.	22 20 46	2868	23 53 46	2859	25 26 58	2849	27 0 22	2841
	Spica	E.	51 39 31	2557	49 59 37	2548	48 19 31	2540	46 39 14	2533
	Saturn	E.	83 29 52	2582	81 50 32	2573	80 11 0	2565	78 31 17	2558
	Antares	E.	97 24 52	2546	95 44 43	2538	94 4 22	[illegible]	92 23 49	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Midnight	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	Venus	E.	63 30 12	[illegible]	62 6 34	[illegible]	60 43 12	[illegible]	59 20 6	[illegible]
	Sun	E.	108 12 3	[illegible]	106 47 1	[illegible]	105 22 15	[illegible]	103 57 43	[illegible]
20	α Aquilæ	W.	79 44 44	[illegible]	81 2 53	[illegible]	82 20 59	[illegible]	83 39 1	[illegible]
	Fomalhaut	W.	54 44 4	[illegible]	56 3 16	[illegible]	57 22 40	[illegible]	58 42 15	[illegible]
	Aldebaran	E.	48 2 3	[illegible]	46 34 11	[illegible]	45 6 36	[illegible]	43 39 19	[illegible]
	Venus	E.	52 28 20	[illegible]	51 6 41	[illegible]	49 45 14	[illegible]	48 24 0	[illegible]
	Sun	E.	96 58 25	[illegible]	95 35 9	[illegible]	94 12 4	[illegible]	92 49 9	[illegible]
21	α Aquilæ	W.	90 8 0	[illegible]	91 25 31	[illegible]	92 42 57	[illegible]	94 0 16	[illegible]
	Fomalhaut	W.	65 22 27	[illegible]	66 42 51	[illegible]	68 3 21	[illegible]	69 23 56	[illegible]
	α Pegasi	W.	42 41 17	[illegible]	44 3 25	[illegible]	45 25 50	[illegible]	46 48 29	[illegible]
	Aldebaran	E.	36 27 43	[illegible]	35 2 26	[illegible]	33 37 33	[illegible]	32 13 6	[illegible]
	Venus	E.	41 40 42	[illegible]	40 20 35	[illegible]	39 0 39	[illegible]	37 40 53	[illegible]
	Sun	E.	85 56 44	[illegible]	84 34 37	[illegible]	83 12 36	[illegible]	81 50 41	[illegible]
22	α Aquilæ	W.	100 25 10	[illegible]	101 41 46	[illegible]	102 58 14	[illegible]	104 14 33	[illegible]
	Fomalhaut	W.	76 8 2	[illegible]	77 29 4	[illegible]	78 50 9	[illegible]	80 11 19	[illegible]
	α Pegasi	W.	53 44 46	[illegible]	55 8 32	[illegible]	56 32 27	[illegible]	57 56 31	[illegible]
	Venus	E.	31 4 39	[illegible]	29 45 58	[illegible]	28 27 29	[illegible]	27 9 14	[illegible]
	Sun	E.	75 2 1	[illegible]	73 40 25	[illegible]	72 18 50	[illegible]	70 57 15	[illegible]
23	Fomalhaut	W.	86 58 1	[illegible]	88 19 32	[illegible]	89 41 7	[illegible]	91 2 45	[illegible]
	α Pegasi	W.	64 55 54	[illegible]	66 23 47	[illegible]	67 48 48	[illegible]	69 13 58	[illegible]
	Sun	E.	64 9 15	[illegible]	62 47 34	[illegible]	61 25 49	[illegible]	60 4 1	[illegible]
24	Fomalhaut	W.	97 51 46	[illegible]	99 13 43	[illegible]	100 35 43	[illegible]	101 57 45	[illegible]
	α Pegasi	W.	76 21 53	[illegible]	77 47 54	[illegible]	79 14 4	[illegible]	80 40 23	[illegible]
	α Arietis	W.	33 6 32	[illegible]	34 35 2	[illegible]	36 3 44	[illegible]	37 32 37	[illegible]
	Sun	E.	53 13 47	[illegible]	51 51 27	[illegible]	50 28 59	[illegible]	49 6 24	[illegible]
25	α Pegasi	W.	87 54 18	[illegible]	89 21 34	[illegible]	90 49 0	[illegible]	92 16 36	[illegible]
	α Arietis	W.	44 59 47	[illegible]	46 29 47	[illegible]	47 59 59	[illegible]	49 30 23	[illegible]
	Sun	E.	42 11 26	[illegible]	40 47 58	[illegible]	39 24 21	[illegible]	38 0 34	[illegible]
26	α Pegasi	W.	99 37 4	[illegible]	101 5 30	[illegible]	102 34 24	[illegible]	104 3 18	[illegible]
	α Arietis	W.	57 5 28	[illegible]	58 37 8	[illegible]	60 9 0	[illegible]	61 41 5	[illegible]
	Sun	E.	30 58 47	[illegible]	29 33 51	[illegible]	28 8 42	[illegible]	26 43 20	[illegible]
27	α Arietis	W.	69 24 56	[illegible]	70 58 23	[illegible]	72 32 5	[illegible]	74 6 1	[illegible]
	Aldebaran	W.	37 57 51	[illegible]	39 28 2	[illegible]	40 58 39	[illegible]	42 29 42	[illegible]
	Sun	E.	19 33 19	[illegible]	18 6 39	[illegible]	16 39 45	[illegible]	15 12 37	[illegible]
30	Sun	W.	16 10 50	[illegible]	17 43 0	[illegible]	19 15 23	[illegible]	20 47 58	[illegible]
	Spica	E.	58 17 11	[illegible]	56 39 4	[illegible]	54 59 45	[illegible]	53 19 14	[illegible]
	Saturn	E.	90 5 12	[illegible]	88 26 41	[illegible]	86 47 57	[illegible]	85 9 1	[illegible]
	Antares	E.	104 3 24	[illegible]	102 24 5	[illegible]	100 44 33	[illegible]	99 4 49	[illegible]
31	Sun	W.	28 33 57	[illegible]	30 7 44	[illegible]	31 41 42	[illegible]	33 15 52	[illegible]
	Spica	E.	44 [illegible] 47	[illegible]	43 18 10	[illegible]	41 37 22	[illegible]	39 56 24	[illegible]
	Saturn	E.	76 51 24	[illegible]	75 11 20	[illegible]	73 31 5	[illegible]	71 50 40	[illegible]
	Antares	E.	90 43 5	[illegible]	89 2 9	[illegible]	87 21 2	[illegible]	85 39 43	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Added to / Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
SUN.	1	8 47 30.86	9.700	N.17 54 7.6	−38.16	15 48.08	66.61	6 4.95	0.156
Mon.	2	8 51 23.36	9.674	17 38 42.9	38.88	15 48.21	66.52	6 0.91	0.181
Tues.	3	8 55 15.24	9.649	17 23 1.2	39.59	15 48.35	66.44	5 56.24	0.207
Wed.	4	8 59 6.51	9.623	17 7 2.5	−40.29	15 48.50	66.35	5 50.96	0.233
Thur.	5	9 2 57.15	9.597	16 50 47.4	40.97	15 48.65	66.26	5 45.06	0.259
Frid.	6	9 6 47.18	9.572	16 34 16.0	41.64	15 48.80	66.17	5 38.56	0.284
Sat.	7	9 10 36.60	9.547	16 17 28.7	−42.30	15 48.95	66.09	5 31.44	0.309
SUN.	8	9 14 25.41	9.522	16 0 25.7	42.95	15 49.11	66.01	5 23.72	0.334
Mon.	9	9 18 13.63	9.497	15 43 7.4	43.58	15 49.27	65.92	5 15.40	0.359
Tues.	10	9 22 1.25	9.473	15 25 34.1	−44.20	15 49.44	65.84	5 6.50	0.383
Wed.	11	9 25 48.30	9.449	15 7 46.0	44.81	15 49.60	65.76	4 57.02	0.407
Thur.	12	9 29 34.79	9.425	14 49 43.4	45.41	15 49.77	65.68	4 46.97	0.430
Frid.	13	9 33 20.71	9.402	14 31 26.7	−45.99	15 49.94	65.60	4 36.37	0.453
Sat.	14	9 37 6.09	9.380	14 12 56.0	46.56	15 50.12	65.52	4 25.23	0.475
SUN.	15	9 40 50.95	9.358	13 54 11.8	47.12	15 50.29	65.44	4 13.56	0.497
Mon.	16	9 44 35.28	9.337	13 35 14.2	−47.67	15 50.47	65.37	4 1.37	0.518
Tues.	17	9 48 19.11	9.316	13 16 3.6	48.21	15 50.65	65.29	3 48.68	0.539
Wed.	18	9 52 2.45	9.296	12 56 40.2	48.73	15 50.84	65.22	3 35.50	0.559
Thur.	19	9 55 45.31	9.276	12 37 4.4	−49.24	15 51.02	65.15	3 21.84	0.579
Frid.	20	9 59 27.71	9.257	12 17 16.5	49.74	15 51.21	65.08	3 7.72	0.598
Sat.	21	10 3 9.65	9.239	11 57 16.8	50.23	15 51.40	65.01	2 53.15	0.616
SUN.	22	10 6 51.16	9.221	11 37 5.6	−50.70	15 51.60	64.94	2 38.15	0.634
Mon.	23	10 10 32.24	9.203	11 16 43.3	51.16	15 51.80	64.88	2 22.71	0.652
Tues.	24	10 14 12.90	9.186	10 56 10.1	51.60	15 52.00	64.82	2 6.86	0.669
Wed.	25	10 17 53.16	9.169	10 35 26.4	−52.03	15 52.21	64.76	1 50.61	0.685
Thur.	26	10 21 33.02	9.153	10 14 32.6	52.45	15 52.42	64.70	1 33.96	0.701
Frid.	27	10 25 12.50	9.138	9 53 29.0	52.85	15 52.64	64.64	1 16.94	0.717
Sat.	28	10 28 51.62	9.123	9 32 16.0	−53.24	15 52.86	64.59	0 59.55	0.732
SUN.	29	10 32 30.38	9.108	9 10 53.8	53.61	15 53.08	64.54	0 41.80	0.747
Mon.	30	10 36 8.79	9.094	8 49 22.9	53.97	15 53.31	64.49	0 23.71	0.761
Tues.	31	10 39 46.88	9.080	8 27 43.6	54.31	15 53.54	64.44	0 5.29	0.774
Wed.	32	10 43 24.64	9.067	N. 8 5 56.2	−54.63	15 53.77	64.40	0 13.44	0.787

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Subtracted from / Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
SUN.	1	8 47 2[illegible].58	9.701	N. 17 54 11.4	−38.16	6 4.96	0.156	8 41 24.91
Mon.	2	8 51 22.39	9.676	17 38 46.8	38.88	6 0.92	0.182	8 45 21.47
Tues.	3	8 55 14.29	9.650	17 23 5.0	39.59	5 56.26	0.208	8 49 18.03
Wed.	4	8 59 5.57	9.624	17 7 6.4	−40.29	5 50.99	0.233	8 53 14.58
Thur.	5	9 2 56.23	9.598	16 50 51.2	40.97	5 45.09	0.258	8 57 11.14
Frid.	6	9 6 46.28	9.572	16 34 19.8	41.64	5 38.58	0.284	9 1 7.70
Sat.	7	9 10 35.72	9.547	16 17 32.5	−42.30	5 31.47	0.309	9 5 4.25
SUN.	8	9 14 24.56	9.522	16 0 29.5	42.95	5 23.75	0.334	9 9 0.81
Mon.	9	9 18 12.79	9.498	15 43 11.2	43.58	5 15.43	0.359	9 12 57.36
Tues.	10	9 22 0.45	9.474	15 25 37.6	−44.20	5 6.53	0.384	9 16 53.92
Wed.	11	9 25 47.52	9.450	15 7 49.6	44.81	4 57.05	0.408	9 20 50.47
Thur.	12	9 29 34.03	9.427	14 49 47.0	45.41	4 47.00	0.431	9 24 47.03
Frid.	13	9 33 19.90	9.404	14 31 30.2	−45.99	4 36.40	0.453	9 28 43.59
Sat.	14	9 37 5.40	9.381	14 12 59.4	46.56	4 25.26	0.475	9 32 40.14
SUN.	15	9 40 50.29	9.359	13 54 15.0	47.13	4 13.59	0.497	9 36 36.70
Mon.	16	9 44 34.66	9.[illegible]	13 35 17.3	−47.68	4 1.41	0.518	9 40 33.25
Tues.	17	9 48 18.52	9.317	13 16 6.6	48.21	3 48.71	0.539	9 44 29.81
Wed.	18	9 52 1.80	9.297	12 56 43.1	48.73	3 35.53	0.559	9 48 26.36
Thur.	19	9 55 44.79	9.2[illegible]	12 37 7.2	−49.25	3 21.87	0.579	9 52 22.92
Frid.	20	9 59 27.22	9.259	12 17 19.1	49.75	3 7.75	0.598	9 56 19.47
Sat.	21	10 3 9.21	9.240	11 57 19.2	50.24	2 53.16	0.616	10 0 16.03
SUN.	22	10 6 50.75	9.222	11 37 7.8	−50.71	2 38.17	0.634	10 4 12.58
Mon.	23	10 10 31.87	9.205	11 16 45.3	51.16	2 22.73	0.652	10 8 9.14
Tues.	24	10 14 12.57	9.188	10 56 11.9	51.60	2 6.88	0.669	10 12 5.69
Wed.	25	10 17 52.8[illegible]	9.171	10 35 28.0	−52.04	1 50.63	0.685	10 16 2.24
Thur.	26	10 21 32.7[illegible]	9.155	10 14 33.9	52.46	1 33.[illegible]	0.701	10 19 58.80
Frid.	27	10 25 12.31	9.139	9 53 30.1	52.86	1 16.[illegible]	0.717	10 23 55.35
Sat.	28	10 28 51.47	9.124	9 32 16.8	−53.25	0 59.56	0.732	10 27 51.91
SUN.	29	10 32 [illegible]	9.110	9 10 54.4	53.[illegible]	0 41.81	0.747	10 31 48.46
Mon.	30	10 36 [illegible]	9.[illegible]	8 49 23.2	53.97	0 23.72	0.761	10 35 45.01
Tues.	31	10 39 46.[illegible]	9.[illegible]	8 27 43.6	54.31	0 5.29	0.774	10 39 41.57
Wed.	32	10 43 24.[illegible]	[illegible]	N. 8 5 56.0	−54.65	0 13.45	0.787	10 43 38.12

NOTE.—The [illegible] may be assumed the same as [illegible] for apparent noon. The sign − prefixed to the hourly change of declination indicates that north declinations are decreasing.

Diff. for 1 Hour, + 9s.8565. (Table III.)

9

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	213	129 26 19.9	25 35.5	143.63	− 0.52	0.0063308	−25.2	15 16 4.60
2	214	130 23 47.4	23 2.9	143.66	0.60	0.0062692	26.1	15 12 8.69
3	215	131 21 15.7	20 31.0	143.69	0.65	0.0062055	27.0	15 8 12.78
4	216	132 18 44.7	17 59.9	143.72	− 0.67	0.0061397	−27.8	15 4 16.87
5	217	133 16 14.4	15 29.4	143.75	0.67	0.0060720	28.6	15 0 20.96
6	218	134 13 44.9	12 59.8	143.78	0.64	0.0060024	29.3	14 56 25.05
7	219	135 11 16.2	10 31.0	143.82	− 0.57	0.0059311	−30.0	14 52 29.14
8	220	136 8 48.4	8 3.0	143.85	0.48	0.0058585	30.6	14 48 33.23
9	221	137 6 21.4	5 35.8	143.89	0.37	0.0057846	31.1	14 44 37.32
10	222	138 3 55.3	3 9.6	143.93	− 0.24	0.0057093	−31.6	14 40 41.41
11	223	139 1 30.4	0 44.5	143.98	− 0.11	0.0056329	32.1	14 36 45.50
12	224	139 59 6.5	58 20.5	144.03	+ 0.03	0.0055554	32.5	14 32 49.59
13	225	140 56 43.8	55 57.6	144.08	+ 0.16	0.0054769	−32.9	14 28 53.68
14	226	141 54 22.4	53 36.1	144.14	0.28	0.0053974	33.3	14 24 57.77
15	227	142 52 2.4	51 16.0	144.20	0.38	0.0053170	33.7	14 21 1.86
16	228	143 49 43.9	48 57.4	144.26	+ 0.45	0.0052355	−34.1	14 17 5.95
17	229	144 47 26.8	46 40.1	144.32	0.50	0.0051529	34.6	14 13 10.04
18	230	145 45 11.3	44 24.5	144.39	0.53	0.0050693	35.1	14 9 14.13
19	231	146 42 57.6	42 10.6	144.46	+ 0.51	0.0049843	−35.7	14 5 18.23
20	232	147 40 45.4	39 58.3	144.53	0.48	0.0048979	36.3	14 1 22.32
21	233	148 38 35.0	37 47.8	144.60	0.41	0.0048102	36.9	13 57 26.41
22	234	149 36 26.3	35 39.0	144.67	+ 0.32	0.0047209	−37.6	13 53 30.50
23	235	150 34 19.4	33 32.0	144.75	0.21	0.0046299	38.3	13 49 34.59
24	236	151 32 14.1	31 26.6	144.82	+ 0.09	0.0045372	39.0	13 45 38.68
25	237	152 30 10.6	29 23.0	144.89	− 0.04	0.0044426	−39.8	13 41 42.77
26	238	153 28 8.8	27 21.0	144.96	0.17	0.0043461	40.5	13 37 46.86
27	239	154 26 8.7	25 20.8	145.02	0.28	0.0042478	41.3	13 33 50.95
28	240	155 24 10.1	23 22.1	145.09	− 0.39	0.0041476	−42.1	13 29 55.04
29	241	156 22 13.2	21 25.0	145.15	0.48	0.0040456	42.9	13 25 59.14
30	242	157 20 17.7	19 29.4	145.22	0.55	0.0039419	43.6	13 22 3.23
31	243	158 18 23.8	17 35.4	145.28	0.57	0.0038365	44.3	13 18 7.32
32	244	159 16 31.4	15 42.9	145.35	− 0.57	0.0037294	−44.9	13 14 11.41

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January $0^d.0$.

Diff. for 1 Hour, $-9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 46.7	15 50.4	57 48.0	+1.14	58 1.4	+1.08	2 19.4	1.92	2.8
2	15 53.8	15 57.0	58 14.0	1.00	58 25.8	0.95	3 5.7	1.96	3.8
3	16 0.0	16 2.8	58 36.7	0.88	58 46.8	0.80	3 53.4	2.03	4.8
4	16 5.3	16 7.5	58 56.0	+0.73	59 4.2	+0.64	4 43.7	2.16	5.8
5	16 9.5	16 11.1	59 11.4	0.56	59 17.6	0.46	5 37.5	2.33	6.8
6	16 12.5	16 13.5	59 22.5	0.35	59 26.1	+0.24	6 35.4	2.49	7.8
7	16 14.0	16 14.2	59 28.2	+0.11	59 28.7	−0.04	7 36.6	2.60	8.8
8	16 13.8	16 12.9	59 27.3	−0.19	59 24.1	0.35	8 39.3	2.61	9.8
9	16 11.5	16 9.4	59 18.8	0.53	59 11.3	0.71	9 40.8	2.51	10.8
10	16 6.8	16 3.7	59 1.8	−0.88	58 50.2	−1.05	10 39.1	2.34	11.8
11	16 0.0	15 55.7	58 36.5	1.22	58 20.9	1.36	11 33.0	2.16	12.8
12	15 51.0	15 46.0	58 3.8	1.48	57 45.3	1.59	12 22.7	1.99	13.8
13	15 40.7	15 35.2	57 25.7	−1.66	57 5.5	−1.70	13 9.0	1.87	14.8
14	15 29.6	15 24.0	56 45.0	1.70	56 24.6	1.68	13 53.1	1.80	15.8
15	15 18.6	15 13.4	56 4.6	1.63	55 45.4	1.55	14 35.9	1.78	16.8
16	15 8.5	15 4.0	55 27.4	−1.44	55 10.9	−1.30	15 18.7	1.79	17.8
17	14 59.9	14 56.4	54 56.1	1.15	54 43.2	0.98	16 2.3	1.85	18.8
18	14 53.5	14 51.3	54 32.6	0.79	54 24.3	0.59	16 47.5	1.92	19.8
19	14 40.7	14 48.8	54 18.4	−0.38	54 15.1	−0.17	17 34.7	2.01	20.8
20	14 45.6	14 49.1	54 14.4	+0.05	54 16.3	+0.27	18 24.1	2.09	21.8
21	14 50.3	14 52.2	54 20.8	0.48	54 27.8	0.68	19 15.1	2.15	22.8
22	14 54.8	14 58.0	54 37.2	+0.88	54 48.9	+1.06	20 6.9	2.17	23.8
23	15 1.7	15 6.0	55 2.7	1.23	55 18.3	1.37	20 58.7	2.14	24.8
24	15 10.7	15 15.7	55 35.5	1.49	55 54.0	1.58	21 49.4	2.09	25.8
25	15 21.0	15 26.5	56 13.5	+1.65	56 33.6	+1.69	22 38.8	2.02	26.8
26	15 32.0	15 37.5	56 54.0	1.69	57 14.2	1.67	23 26.8	1.98	27.8
27	15 42.9	15 47.1	57 34.0	1.61	57 52.9	1.53	6		28.8
28	15 52.9	15 57.3	58 10.6	+1.42	58 26.9	+1.28	0 14.0	1.96	0.4
29	16 1.3	16 4.7	58 41.4	1.13	58 54.0	0.97	1 1.2	1.98	1.4
30	16 7.6	16 9.9	59 4.6	0.80	59 13.1	0.62	1 49.4	2.05	2.4
31	16 11.7	16 12.8	59 19.5	0.45	59 23.8	+0.28	2 39.9	2.16	3.4
32	16 13.5	16 13.6	59 26.2	+0.13	59 26.8	[illegible]	3 33.5	2.30	4.4

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	10 56 31.40	2.0198	N. 3 14 6.0	15.215
1	10 58 32.60	2.0201	2 58 52.4	15.238
2	11 0 33.81	2.0204	2 43 37.4	15.260
3	11 2 35.04	2.0207	2 28 21.2	15.280
4	11 4 36.29	2.0211	2 13 3.8	15.300
5	11 6 37.57	2.0216	1 57 45.2	15.319
6	11 8 38.89	2.0222	1 42 25.5	15.337
7	11 10 40.24	2.0228	1 27 4.8	15.353
8	11 12 41.63	2.0236	1 11 43.2	15.367
9	11 14 43.07	2.0244	0 56 20.8	15.380
10	11 16 44.56	2.0253	0 40 57.6	15.392
11	11 18 46.11	2.0262	0 25 33.7	15.404
12	11 20 47.71	2.0273	N. 0 10 9.1	15.414
13	11 22 49.38	2.0284	S. 0 5 16.0	15.422
14	11 24 51.12	2.0295	0 20 41.6	15.430
15	11 26 52.92	2.0307	0 36 7.6	15.436
16	11 28 54.80	2.0321	0 51 33.9	15.441
17	11 30 56.77	2.0335	1 7 0.5	15.444
18	11 32 58.82	2.0349	1 22 27.2	15.446
19	11 35 0.96	2.0365	1 37 54.0	15.447
20	11 37 3.20	2.0381	1 53 20.9	15.447
21	11 39 5.53	2.0398	2 8 47.7	15.446
22	11 41 7.97	2.0416	2 24 14.4	15.443
23	11 43 10.52	2.0435	S. 2 39 40.9	15.439

MONDAY 2.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	11 45 13.19	2.0454	S. 2 55 7.1	15.434
1	11 47 15.97	2.0474	3 10 33.0	15.427
2	11 49 18.88	2.0495	3 25 58.4	15.418
3	11 51 21.91	2.0517	3 41 23.2	15.408
4	11 53 25.08	2.0540	3 56 47.4	15.398
5	11 55 28.39	2.0563	4 12 11.0	15.387
6	11 57 31.83	2.0586	4 27 33.8	15.373
7	11 59 35.42	2.0611	4 42 55.8	15.359
8	12 1 39.17	2.0637	4 58 16.9	15.342
9	12 3 43.07	2.0664	5 13 36.9	15.324
10	12 5 47.13	2.0691	5 28 55.8	15.306
11	12 7 51.36	2.0718	5 44 13.6	15.287
12	12 9 55.75	2.0747	5 59 30.2	15.265
13	12 12 0.32	2.0777	6 14 45.4	15.242
14	12 14 5.07	2.0807	6 29 59.2	15.218
15	12 16 10.01	2.0838	6 45 11.6	15.194
16	12 18 15.13	2.0870	7 0 22.5	15.167
17	12 20 20.45	2.0902	7 15 31.6	15.137
18	12 22 25.96	2.0936	7 30 38.9	15.107
19	12 24 31.68	2.0971	7 45 44.4	15.077
20	12 26 37.61	2.1005	8 0 48.1	15.045
21	12 28 43.74	2.1040	8 15 49.8	15.011
22	12 30 50.09	2.1077	8 30 49.4	14.975
23	12 32 56.66	2.1114	8 45 46.8	14.938
24	12 35 3.46	2.1152	S. 9 0 42.0	14.901

TUESDAY 3.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	12 35 3.46	2.1152	S. 9 0 42.0	14.901
1	12 37 10.49	2.1191	9 15 34.9	14.862
2	12 39 17.75	2.1230	9 30 25.4	14.820
3	12 41 25.25	2.1271	9 45 13.3	14.777
4	12 43 33.00	2.1312	9 59 58.6	14.733
5	12 45 40.99	2.1353	10 14 41.3	14.688
6	12 47 49.23	2.1395	10 29 21.2	14.642
7	12 49 57.73	2.1438	10 43 58.3	14.595
8	12 52 6.49	2.1482	10 58 32.4	14.542
9	12 54 15.51	2.1526	11 13 3.4	14.491
10	12 56 24.80	2.1572	11 27 31.3	14.439
11	12 58 34.37	2.1617	11 41 56.1	14.386
12	13 0 44.21	2.1663	11 56 17.6	14.330
13	13 2 54.33	2.1711	12 10 35.7	14.272
14	13 5 4.74	2.1759	12 24 50.3	14.213
15	13 7 15.44	2.1807	12 39 1.3	14.153
16	13 9 26.43	2.1857	12 53 8.7	14.092
17	13 11 37.72	2.1907	13 7 12.3	14.028
18	13 13 49.31	2.1958	13 21 12.1	13.964
19	13 16 1.21	2.2009	13 35 8.0	13.897
20	13 18 13.42	2.2060	13 48 59.8	13.829
21	13 20 25.93	2.2112	14 2 47.5	13.760
22	13 22 38.76	2.2165	14 16 31.0	13.689
23	13 24 51.91	2.2219	S. 14 30 10.2	13.617

WEDNESDAY 4.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	13 27 5.39	2.2273	S. 14 43 45.0	13.543
1	13 29 19.19	2.2328	14 57 15.3	13.468
2	13 31 33.32	2.2383	15 10 41.1	13.391
3	13 33 47.79	2.2439	15 24 2.2	13.312
4	13 36 2.59	2.2495	15 37 18.5	13.231
5	13 38 17.73	2.2552	15 50 29.9	13.149
6	13 40 33.21	2.2609	16 3 36.4	13.066
7	13 42 49.04	2.2667	16 16 37.8	12.980
8	13 45 5.21	2.2725	16 29 34.0	12.893
9	13 47 21.74	2.2784	16 42 25.0	12.805
10	13 49 38.62	2.2843	16 55 10.6	12.715
11	13 51 55.85	2.2902	17 7 50.8	12.624
12	13 54 13.44	2.2962	17 20 25.5	12.531
13	13 56 31.39	2.3022	17 32 54.5	12.436
14	13 58 49.70	2.3083	17 45 17.8	12.340
15	14 1 8 38	2.3144	17 57 35.3	12.242
16	14 3 27.43	2.3206	18 9 46.8	12.142
17	14 5 46.85	2.3267	18 21 52.3	12.041
18	14 8 6.63	2.3328	18 33 51.7	11.938
19	14 10 26.79	2.3391	18 45 44.9	11.833
20	14 12 47.32	2.3453	18 57 31.7	11.726
21	14 15 8.22	2.3515	19 9 12.2	11.6[illegible]
22	14 17 29.50	2.3578	19 20 46.1	11.510
23	14 19 51.16	2.3641	19 32 13.4	11.399
24	14 22 13.19	2.3703	S. 19 43 34.0	11.287

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 5.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	14 22 13.19	[illegible]	S.19 43 34.0	[illegible]
1	14 24 35.60	[illegible]	19 54 47.8	[illegible]
2	14 26 58.39	[illegible]	20 5 54.7	[illegible]
3	14 29 21.56	[illegible]	20 16 54.6	[illegible]
4	14 31 45.10	[illegible]	20 27 47.4	[illegible]
5	14 34 9.03	[illegible]	20 38 33.0	[illegible]
6	14 36 33.34	[illegible]	20 49 11.4	[illegible]
7	14 38 58.03	[illegible]	20 59 42.3	[illegible]
8	14 41 23.10	[illegible]	21 10 5.8	[illegible]
9	14 43 48.54	[illegible]	21 20 21.7	[illegible]
10	14 46 14.37	[illegible]	21 30 29.9	[illegible]
11	14 48 40.57	[illegible]	21 40 30.4	[illegible]
12	14 51 7.15	[illegible]	21 50 23.0	[illegible]
13	14 53 34.10	[illegible]	22 0 7.7	[illegible]
14	14 56 1.43	[illegible]	22 9 44.3	[illegible]
15	14 58 29.13	[illegible]	22 19 12.7	[illegible]
16	15 0 57.20	[illegible]	22 28 32.9	[illegible]
17	15 3 25.63	[illegible]	22 37 44.8	[illegible]
18	15 5 54.43	[illegible]	22 46 48.3	[illegible]
19	15 8 23.60	[illegible]	22 55 43.2	[illegible]
20	15 10 53.13	[illegible]	23 4 29.6	[illegible]
21	15 13 23.02	[illegible]	23 13 7.3	[illegible]
22	15 15 53.26	[illegible]	23 21 36.2	[illegible]
23	15 18 23.85	[illegible]	S.23 29 56.2	[illegible]

FRIDAY 6.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	15 20 54.70	[illegible]	S.23 38 7.3	[illegible]
1	15 23 26.09	[illegible]	23 46 9.3	[illegible]
2	15 25 57.78	[illegible]	23 54 2.2	[illegible]
3	15 28 29.69	[illegible]	24 1 45.9	[illegible]
4	15 31 1.[illegible]	[illegible]	24 9 20.3	[illegible]
5	15 33 34.63	[illegible]	24 16 45.3	[illegible]
6	15 36 7.[illegible]	[illegible]	24 24 0.9	[illegible]
7	15 38 40.87	[illegible]	24 31 6.9	[illegible]
8	15 41 14.47	[illegible]	24 38 3.3	[illegible]
9	15 43 48.[illegible]	[illegible]	24 44 50.0	[illegible]
10	15 46 22.[illegible]	[illegible]	24 51 27.0	[illegible]
11	15 48 57.[illegible]	[illegible]	24 57 54.1	[illegible]
12	15 51 31.[illegible]	[illegible]	25 4 11.4	[illegible]
13	15 54 7.[illegible]	[illegible]	25 10 18.[illegible]	[illegible]
14	15 56 42.[illegible]	[illegible]	25 16 15.[illegible]	[illegible]
15	15 59 18.[illegible]	[illegible]	25 22 [illegible]	[illegible]
16	16 1 53.95	[illegible]	25 27 [illegible]	[illegible]
17	16 4 [illegible]	[illegible]	25 [illegible] 6.3	[illegible]
18	16 7 6.[illegible]	[illegible]	25 [illegible]	[illegible]
19	16 9 43.27	[illegible]	25 41 [illegible]	[illegible]
20	16 12 20.[illegible]	[illegible]	25 4[illegible] [illegible]	[illegible]
21	16 14 57.37	[illegible]	25 [illegible]	[illegible]
22	16 17 34.[illegible]	[illegible]	25 [illegible] 41.2	[illegible]
23	16 20 12.[illegible]	[illegible]	26 2 7.0	[illegible]
24	16 22 50.20	[illegible]	S.26 6 20.1	[illegible]

SATURDAY 7.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	16 22 50.20	[illegible]	S.26 6 20.1	[illegible]
1	16 25 28.23	[illegible]	26 10 22.4	[illegible]
2	16 28 6.46	[illegible]	26 14 14.0	[illegible]
3	16 30 44.87	[illegible]	26 17 54.8	[illegible]
4	16 33 23.46	[illegible]	26 21 24.7	[illegible]
5	16 36 2.22	[illegible]	26 24 43.7	[illegible]
6	16 38 41.14	[illegible]	26 27 51.7	[illegible]
7	16 41 20.21	[illegible]	26 30 48.8	[illegible]
8	16 43 59.43	[illegible]	26 33 34.9	[illegible]
9	16 46 38.78	[illegible]	26 36 9.9	[illegible]
10	16 49 18.26	[illegible]	26 38 33.8	[illegible]
11	16 51 57.86	[illegible]	26 40 46.6	[illegible]
12	16 54 37.56	[illegible]	26 42 48.2	[illegible]
13	16 57 17.36	[illegible]	26 44 38.7	[illegible]
14	16 59 57.25	[illegible]	26 46 18.0	[illegible]
15	17 2 37.21	[illegible]	26 47 46.1	[illegible]
16	17 5 17.24	[illegible]	26 49 2.9	[illegible]
17	17 7 57.33	[illegible]	26 50 8.5	[illegible]
18	17 10 37.47	[illegible]	26 51 2.8	[illegible]
19	17 13 17.65	[illegible]	26 51 45.9	[illegible]
20	17 15 57.85	[illegible]	26 52 17.7	[illegible]
21	17 18 38.08	[illegible]	26 52 38.2	[illegible]
22	17 21 18.32	[illegible]	26 52 47.4	− [illegible]
23	17 23 58.55	[illegible]	S.26 52 45.3	+ [illegible]

SUNDAY 8.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	17 26 38.77	[illegible]	S.26 52 31.9	[illegible]
1	17 29 18.97	[illegible]	26 52 7.2	[illegible]
2	17 31 59.14	[illegible]	26 51 31.3	[illegible]
3	17 34 39.27	[illegible]	26 50 44.1	[illegible]
4	17 37 19.35	[illegible]	26 49 45.6	[illegible]
5	17 39 59.37	[illegible]	26 48 35.9	[illegible]
6	17 42 39.32	[illegible]	26 47 14.9	[illegible]
7	17 45 19.19	[illegible]	26 45 42.8	[illegible]
8	17 47 58.97	[illegible]	26 43 59.4	[illegible]
9	17 50 38.64	[illegible]	26 42 4.9	[illegible]
10	17 53 18.21	[illegible]	26 39 59.3	[illegible]
11	17 55 57.66	[illegible]	26 37 42.5	[illegible]
12	17 58 36.97	[illegible]	26 35 14.7	[illegible]
13	18 1 16.15	[illegible]	26 32 35.8	[illegible]
14	18 3 55.18	[illegible]	26 29 45.9	[illegible]
15	18 6 34.05	[illegible]	26 26 45.0	[illegible]
16	18 9 12.75	[illegible]	26 23 33.1	[illegible]
17	18 11 51.25	[illegible]	26 20 10.4	[illegible]
18	18 14 29.62	[illegible]	26 16 36.8	[illegible]
19	18 17 7.77	[illegible]	26 12 52.4	[illegible]
20	18 19 45.72	[illegible]	26 8 57.3	[illegible]
21	18 22 23.45	[illegible]	26 4 51.5	[illegible]
22	18 25 0.97	[illegible]	26 0 35.0	[illegible]
23	18 27 38.26	[illegible]	25 56 7.9	[illegible]
24	18 30 15.31	[illegible]	S.25 51 30.3	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	18 30 15.31	2.6155	S.25 51 30.3	4.714
1	18 32 52.12	2.6113	25 46 42.2	4.888
2	18 35 28.67	2.6071	25 41 43.7	5.062
3	18 38 4.97	2.6028	25 36 34.8	5.233
4	18 40 41.00	2.5982	25 31 15.7	5.403
5	18 43 16.75	2.5936	25 25 46.4	5.573
6	18 45 52.23	2.5888	25 20 6.9	5.742
7	18 48 27.41	2.5839	25 14 17.3	5.909
8	18 51 2.30	2.5789	25 8 17.8	6.075
9	18 53 36.88	2.5738	25 2 8.3	6.241
10	18 56 11.16	2.5687	24 55 48.9	6.404
11	18 58 45.13	2.5634	24 49 19.8	6.567
12	19 1 18.77	2.5579	24 42 40.9	6.728
13	19 3 52.08	2.5524	24 35 52.5	6.887
14	19 6 25.06	2.5468	24 28 54.5	7.046
15	19 8 57.70	2.5412	24 21 47.0	7.203
16	19 11 30.00	2.5354	24 14 30.2	7.358
17	19 14 1.95	2.5295	24 7 4.1	7.512
18	19 16 33.54	2.5235	23 59 28.8	7.664
19	19 19 4.77	2.5175	23 51 44.4	7.815
20	19 21 35.64	2.5115	23 43 51.0	7.964
21	19 24 6.15	2.5053	23 35 48.7	8.113
22	19 26 36.28	2.4990	23 27 37.5	8.259
23	19 29 6.03	2.4927	S.23 19 17.6	8.404

TUESDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	19 31 35.41	2.4864	S.23 10 49.0	8.548
1	19 34 4.40	2.4800	23 2 11.9	8.689
2	19 36 33.01	2.4735	22 53 26.3	8.829
3	19 39 1.22	2.4669	22 44 32.4	8.968
4	19 41 29.04	2.4604	22 35 30.2	9.105
5	19 43 56.47	2.4538	22 26 19.8	9.240
6	19 46 23.50	2.4472	22 17 1.4	9.373
7	19 48 50.13	2.4404	22 7 35.0	9.506
8	19 51 16.35	2.4337	21 58 0.7	9.637
9	19 53 42.17	2.4269	21 48 18.6	9.765
10	19 56 7.58	2.4202	21 38 28.9	9.892
11	19 58 32.59	2.4133	21 28 31.6	10.017
12	20 0 57.18	2.4064	21 18 26.9	10.140
13	20 3 21.36	2.3996	21 8 14.8	10.262
14	20 5 45.13	2.3927	20 57 55.5	10.382
15	20 8 8.48	2.3858	20 47 29.0	10.500
16	20 10 31.42	2.3789	20 36 55.5	10.617
17	20 12 53.95	2.3720	20 26 15.0	10.732
18	20 15 16.06	2.3650	20 15 27.7	10.844
19	20 17 37.75	2.3581	20 4 33.7	10.956
20	20 19 59.03	2.3512	19 53 33.0	11.066
21	20 22 19.89	2.3442	19 42 25.8	11.173
22	20 24 40.33	2.3372	19 31 12.2	11.280
23	20 27 0.35	2.3303	19 19 52.2	11.385
24	20 29 19.96	2.3233	S.19 8 26.0	11.488

WEDNESDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	20 29 19.96	2.3233	S.19 8 26.0	11.489
1	20 31 39.15	2.3164	18 56 53.7	11.588
2	20 33 57.93	2.3096	18 45 15.5	11.687
3	20 36 16.30	2.3027	18 33 31.3	11.785
4	20 38 34.25	2.2958	18 21 41.3	11.881
5	20 40 51.80	2.2890	18 9 45.6	11.974
6	20 43 8.93	2.2821	17 57 44.4	12.066
7	20 45 25.65	2.2753	17 45 37.7	12.157
8	20 47 41.97	2.2686	17 33 25.6	12.245
9	20 49 57.88	2.2618	17 21 8.3	12.332
10	20 52 13.39	2.2551	17 8 45.7	12.418
11	20 54 28.49	2.2484	16 56 18.1	12.501
12	20 56 43.20	2.2418	16 43 45.6	12.583
13	20 58 57.51	2.2352	16 31 8.2	12.663
14	21 1 11.42	2.2285	16 18 26.0	12.742
15	21 3 24.93	2.2220	16 5 39.2	12.818
16	21 5 38.06	2.2156	15 52 47.8	12.893
17	21 7 50.80	2.2091	15 39 52.0	12.967
18	21 10 3.15	2.2027	15 26 51.8	13.038
19	21 12 15.12	2.1963	15 13 47.4	13.108
20	21 14 26.71	2.1900	15 0 38.8	13.177
21	21 16 37.92	2.1838	14 47 26.1	13.244
22	21 18 48.76	2.1775	14 34 9.5	13.309
23	21 20 59.22	2.1713	S.14 20 49.0	13.373

THURSDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	21 23 9.31	2.1652	S.14 7 24.8	13.434
1	21 25 19.04	2.1591	13 53 56.9	13.494
2	21 27 28.40	2.1530	13 40 25.5	13.553
3	21 29 37.40	2.1471	13 26 50.6	13.610
4	21 31 46.05	2.1413	13 13 12.3	13.666
5	21 33 54.35	2.1354	12 59 30.7	13.720
6	21 36 2.30	2.1296	12 45 45.9	13.772
7	21 38 9.90	2.1238	12 31 58.1	13.823
8	21 40 17.16	2.1182	12 18 7.2	13.872
9	21 42 24.08	2.1125	12 4 13.5	13.919
10	21 44 30.66	2.1069	11 50 16.9	13.966
11	21 46 36.91	2.1015	11 36 17.6	14.011
12	21 48 42.84	2.0961	11 22 15.6	14.053
13	21 50 48.44	2.0907	11 8 11.2	14.094
14	21 52 53.72	2.0854	10 54 4.3	14.135
15	21 54 58.69	2.0802	10 39 55.0	14.174
16	21 57 3.34	2.0750	10 25 43.4	14.211
17	21 59 7.69	2.0699	10 11 29.7	14.247
18	22 1 11.73	2.0649	9 57 13.8	14.281
19	22 3 15.48	2.0600	9 42 55.9	14.314
20	22 5 18.93	2.0550	9 28 36.1	14.346
21	22 7 22.08	2.0502	9 14 14.4	14.377
22	22 9 24.95	2.0454	8 59 50.9	14.405
23	22 11 27.53	2.0407	8 45 25.8	14.432
24	22 13 29.84	2.0362	S. 8 30 59.1	14.458

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 13.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ' "	"
0	22 13 29.84	[illegible]	S. 8 30 59.1	[illegible]
1	22 15 31.87	[illegible]	8 16 30.9	[illegible]
2	22 17 33.63	[illegible]	8 2 1.2	[illegible]
3	22 19 35.13	[illegible]	7 47 30.2	[illegible]
4	22 21 36.36	[illegible]	7 32 57.9	[illegible]
5	22 23 37.34	[illegible]	7 18 24.4	[illegible]
6	22 25 38.06	[illegible]	7 3 49.8	[illegible]
7	22 27 38.53	[illegible]	6 49 14.1	[illegible]
8	22 29 38.75	[illegible]	6 34 37.5	[illegible]
9	22 31 38.74	[illegible]	6 20 0.0	[illegible]
10	22 33 38.49	[illegible]	6 5 21.6	[illegible]
11	22 35 38.00	[illegible]	5 50 42.6	[illegible]
12	22 37 37.28	[illegible]	5 36 2.9	[illegible]
13	22 39 36.34	[illegible]	5 21 22.6	[illegible]
14	22 41 35.19	[illegible]	5 6 41.8	[illegible]
15	22 43 33.82	[illegible]	4 52 0.5	[illegible]
16	22 45 32.24	[illegible]	4 37 18.9	[illegible]
17	22 47 30.46	[illegible]	4 22 37.0	[illegible]
18	22 49 28.47	[illegible]	4 7 54.9	[illegible]
19	22 51 26.29	[illegible]	3 53 12.6	[illegible]
20	22 53 23.[illegible]	[illegible]	3 38 30.3	[illegible]
21	22 55 21.36	[illegible]	3 23 47.9	[illegible]
22	22 57 18.61	[illegible]	3 9 5.6	[illegible]
23	22 59 15.68	[illegible]	S. 2 54 23.4	[illegible]

SATURDAY 14.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	23 1 12.58	[illegible]	S. 2 39 41.3	[illegible]
1	23 3 9.11	[illegible]	2 24 59.5	[illegible]
2	23 5 5.88	[illegible]	2 10 18.1	[illegible]
3	23 7 2.28	[illegible]	1 55 37.0	[illegible]
4	23 8 58.53	[illegible]	1 40 57.3	[illegible]
5	23 10 54.62	[illegible]	1 26 16.2	[illegible]
6	23 12 50.56	[illegible]	1 11 36.7	[illegible]
7	23 14 46.36	[illegible]	0 56 57.5	[illegible]
8	23 16 42.02	[illegible]	0 42 19.6	[illegible]
9	23 18 37.55	[illegible]	0 27 42.1	[illegible]
10	23 20 32.[illegible]	[illegible]	S. 0 13 5.5	[illegible]
11	23 22 28.21	[illegible]	N. 0 1 30.2	[illegible]
12	23 24 23.35	[illegible]	0 16 5.0	[illegible]
13	23 26 18.[illegible]	[illegible]	0 30 38.5	[illegible]
14	23 28 13.[illegible]	[illegible]	0 45 11.5	[illegible]
15	23 30 8.10	[illegible]	0 59 43.1	[illegible]
16	23 32 2.[illegible]	[illegible]	1 14 11.5	[illegible]
17	23 33 57.40	[illegible]	1 28 42.[illegible]	[illegible]
18	23 35 51.90	[illegible]	1 43 10.5	[illegible]
19	23 37 4[illegible].31	[illegible]	1 57 37.0	[illegible]
20	23 39 4[illegible]	[illegible]	2 12 2.1	[illegible]
21	23 41 34.[illegible]	[illegible]	2 26 25.7	[illegible]
22	23 43 2[illegible].03	[illegible]	2 40 47.8	[illegible]
23	23 45 23.11	[illegible]	2 55 8.3	[illegible]
24	23 47 17.12	[illegible]	N. 3 9 27.2	[illegible]

SUNDAY 15.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ' "	"
0	23 47 17.12	[illegible]	N. 3 9 27.2	[illegible]
1	23 49 11.07	[illegible]	3 23 44.4	[illegible]
2	23 51 4.95	[illegible]	3 37 59.9	[illegible]
3	23 52 58.78	[illegible]	3 52 13.6	[illegible]
4	23 54 52.55	[illegible]	4 6 25.4	[illegible]
5	23 56 46.27	[illegible]	4 20 35.4	[illegible]
6	23 58 39.94	[illegible]	4 34 43.4	[illegible]
7	0 0 33.57	[illegible]	4 48 49.4	[illegible]
8	0 2 27.16	[illegible]	5 2 53.4	[illegible]
9	0 4 20.72	[illegible]	5 16 55.2	[illegible]
10	0 6 14.25	[illegible]	5 30 54.9	[illegible]
11	0 8 7.75	[illegible]	5 44 52.4	[illegible]
12	0 10 1.23	[illegible]	5 58 47.6	[illegible]
13	0 11 54.69	[illegible]	6 12 40.5	[illegible]
14	0 13 48.14	[illegible]	6 26 31.1	[illegible]
15	0 15 41.58	[illegible]	6 40 19.3	[illegible]
16	0 17 35.01	[illegible]	6 54 5.1	[illegible]
17	0 19 28.44	[illegible]	7 7 48.3	[illegible]
18	0 21 21.87	[illegible]	7 21 29.0	[illegible]
19	0 23 15.30	[illegible]	7 35 7.1	[illegible]
20	0 25 8.74	[illegible]	7 48 42.6	[illegible]
21	0 27 2.20	[illegible]	8 2 15.4	[illegible]
22	0 28 55.67	[illegible]	8 15 45.4	[illegible]
23	0 30 49.16	[illegible]	N. 8 29 12.7	[illegible]

MONDAY 16.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	0 32 42.67	[illegible]	N. 8 42 37.1	[illegible]
1	0 34 36.21	[illegible]	8 55 58.7	[illegible]
2	0 36 29.79	[illegible]	9 9 17.3	[illegible]
3	0 38 23.40	[illegible]	9 22 33.0	[illegible]
4	0 40 17.05	[illegible]	9 35 45.6	[illegible]
5	0 42 10.74	[illegible]	9 48 55.2	[illegible]
6	0 44 4.48	[illegible]	10 2 1.7	[illegible]
7	0 45 58.27	[illegible]	10 15 5.1	[illegible]
8	0 47 52.11	[illegible]	10 28 5.3	[illegible]
9	0 49 46.01	[illegible]	10 41 2.2	[illegible]
10	0 51 39.97	[illegible]	10 53 55.9	[illegible]
11	0 53 33.99	[illegible]	11 6 46.2	[illegible]
12	0 55 28.08	[illegible]	11 19 33.1	[illegible]
13	0 57 22.24	[illegible]	11 32 16.7	[illegible]
14	0 59 16.47	[illegible]	11 44 56.8	[illegible]
15	1 1 10.78	[illegible]	11 57 33.4	[illegible]
16	1 3 5.17	[illegible]	12 10 6.5	[illegible]
17	1 4 59.64	[illegible]	12 22 36.0	[illegible]
18	1 6 54.20	[illegible]	12 35 1.9	[illegible]
19	1 8 4[illegible]	[illegible]	12 47 24.1	[illegible]
20	1 10 43.[illegible]	[illegible]	12 59 42.6	[illegible]
21	1 12 3[illegible].43	[illegible]	13 11 57.4	[illegible]
22	1 14 3[illegible]	[illegible]	13 24 8.4	[illegible]
23	1 16 [illegible].41	[illegible]	13 36 15.6	[illegible]
24	1 18 23.56	[illegible]	N.13 48 18.8	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	TUESDAY 17.					**THURSDAY 19.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	1 18 23.56	1.9200	N.13 48 18.8	12.022	0	2 53 25.11	2.0520	N.21 57 30.9	8.102
1	1 20 18.81	1.9218	14 0 18.2	11.957	1	2 55 28.33	2.0553	22 5 34.1	8.004
2	1 22 14.18	1.9237	14 12 13.6	11.890	2	2 57 31.75	2.0587	22 13 31.4	7.905
3	1 24 9.66	1.9257	14 24 5.0	11.823	3	2 59 35.37	2.0621	22 21 22.7	7.806
4	1 26 5.26	1.9277	14 35 52.3	11.755	4	3 1 39.20	2.0655	22 29 8.1	7.706
5	1 28 0.98	1.9298	14 47 35.6	11.687	5	3 3 43.23	2.0688	22 36 47.4	7.605
6	1 29 56.83	1.9318	14 59 14.7	11.618	6	3 5 47.46	2.0722	22 44 20.7	7.504
7	1 31 52.80	1.9339	15 10 49.7	11.548	7	3 7 51.90	2.0757	22 51 47.9	7.403
8	1 33 48.90	1.9361	15 22 20.5	11.478	8	3 9 56.54	2.0791	22 59 9.0	7.300
9	1 35 45.13	1.9383	15 33 47.0	11.406	9	3 12 1.39	2.0825	23 6 23.9	7.196
10	1 37 41.49	1.9406	15 45 9.2	11.334	10	3 14 6.44	2.0858	23 13 32.5	7.092
11	1 39 38.00	1.9429	15 56 27.1	11.262	11	3 16 11.69	2.0892	23 20 34.9	6.988
12	1 41 34.64	1.9452	16 7 40.6	11.188	12	3 18 17.15	2.0927	23 27 31.0	6.883
13	1 43 31.42	1.9476	16 18 49.7	11.114	13	3 20 22.81	2.0961	23 34 20.8	6.777
14	1 45 28.35	1.9501	16 29 54.3	11.040	14	3 22 28.68	2.0995	23 41 4.2	6.670
15	1 47 25.43	1.9526	16 40 54.5	10.965	15	3 24 34.75	2.1028	23 47 41.2	6.563
16	1 49 22.66	1.9551	16 51 50.1	10.888	16	3 26 41.02	2.1063	23 54 11.8	6.456
17	1 51 20.04	1.9576	17 2 41.1	10.812	17	3 28 47.50	2.1097	24 0 35.9	6.348
18	1 53 17.57	1.9602	17 13 27.5	10.734	18	3 30 54.18	2.1130	24 6 53.5	6.239
19	1 55 15.26	1.9628	17 24 9.2	10.657	19	3 33 1.06	2.1163	24 13 4.6	6.130
20	1 57 13.11	1.9655	17 34 46.3	10.578	20	3 35 8.13	2.1196	24 19 9.1	6.019
21	1 59 11.12	1.9682	17 45 18.6	10.498	21	3 37 15.41	2.1230	24 25 6.9	5.908
22	2 1 9.29	1.9709	17 55 46.1	10.418	22	3 39 22.89	2.1263	24 30 58.0	5.797
23	2 3 7.63	1.9737	N.18 6 8.8	10.337	23	3 41 30.56	2.1295	N.24 36 42.5	5.685
	WEDNESDAY 18.					**FRIDAY 20.**			
0	2 5 6.14	1.9766	N.18 16 26.6	10.256	0	3 43 38.43	2.1328	N.24 42 20.2	5.573
1	2 7 4.82	1.9794	18 26 39.5	10.174	1	3 45 46.49	2.1360	24 47 51.2	5.459
2	2 9 3.67	1.9823	18 36 47.5	10.092	2	3 47 54.75	2.1393	24 53 15.3	5.345
3	2 11 2.69	1.9852	18 46 50.5	10.008	3	3 50 3.20	2.1425	24 58 32.6	5.231
4	2 13 1.89	1.9881	18 56 48.4	9.923	4	3 52 11.85	2.1457	25 3 43.0	5.116
5	2 15 1.26	1.9910	19 6 41.3	9.839	5	3 54 20.68	2.1488	25 8 46.5	5.001
6	2 17 0.81	1.9941	19 16 29.1	9.753	6	3 56 29.70	2.1519	25 13 43.1	4.885
7	2 19 0.55	1.9972	19 26 11.7	9.668	7	3 58 38.91	2.1551	25 18 32.7	4.768
8	2 21 0.47	2.0002	19 35 49.2	9.582	8	4 0 48.31	2.1582	25 23 15.3	4.651
9	2 23 0.57	2.0033	19 45 21.5	9.494	9	4 2 57.89	2.1612	25 27 50.8	4.533
10	2 25 0.86	2.0063	19 54 48.5	9.406	10	4 5 7.65	2.1642	25 32 19.3	4.415
11	2 27 1.33	2.0094	20 4 10.2	9.317	11	4 7 17.59	2.1672	25 36 40.6	4.296
12	2 29 1.99	2.0126	20 13 26.5	9.227	12	4 9 27.71	2.1702	25 40 54.8	4.177
13	2 31 2.84	2.0158	20 22 37.4	9.137	13	4 11 38.01	2.1731	25 45 1.8	4.057
14	2 33 3.88	2.0190	20 31 42.9	9.047	14	4 13 48.48	2.1759	25 49 1.6	3.937
15	2 35 5.12	2.0223	20 40 43.0	8.955	15	4 15 59.12	2.1788	25 52 54.2	3.816
16	2 37 6.55	2.0255	20 49 37.5	8.863	16	4 18 9.93	2.1816	25 56 39.5	3.694
17	2 39 8.18	2.0288	20 58 26.5	8.770	17	4 20 20.91	2.1843	26 0 17.5	3.572
18	2 41 10.00	2.0320	21 7 9.9	8.677	18	4 22 32.05	2.1871	26 3 48.2	3.450
19	2 43 12.02	2.0353	21 15 47.7	8.583	19	4 24 43.36	2.1898	26 7 11.5	3.327
20	2 45 14.24	2.0386	21 24 19.9	8.488	20	4 26 54.83	2.1925	26 10 27.4	3.203
21	2 47 16.65	2.0419	21 32 46.3	8.392	21	4 29 6.46	2.1951	26 13 35.9	3.080
22	2 49 19.27	2.0453	21 41 7.0	8.296	22	4 31 18.24	2.1976	26 16 37.0	2.956
23	2 51 22.09	2.0487	21 49 21.8	8.199	23	4 33 30.17	2.2001	26 19 30.6	2.831
24	2 53 25.11	2.0520	N.21 57 30.9	8.102	24	4 35 42.25	2.2026	N.26 22 16.7	2.706

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SATURDAY 21.

Hour	Right Ascension	Diff for 1 Minute	Declination	Diff for 1 Minute
	h m s	s	° ′ ″	″
0	4 35 42.25	[illegible]	N.26 22 16.7	[illegible]
1	4 37 54.48	[illegible]	26 24 55.3	[illegible]
2	4 40 6.85	[illegible]	26 27 26.3	[illegible]
3	4 42 19.37	[illegible]	26 29 49.8	[illegible]
4	4 44 32.02	[illegible]	26 32 5.6	[illegible]
5	4 46 44.81	[illegible]	26 34 13.8	[illegible]
6	4 48 57.73	[illegible]	26 36 14.4	[illegible]
7	4 51 10.78	[illegible]	26 38 7.3	[illegible]
8	4 53 23.95	[illegible]	26 39 52.4	[illegible]
9	4 55 37.24	[illegible]	26 41 29.9	[illegible]
10	4 57 50.65	[illegible]	26 42 59.6	[illegible]
11	5 0 4.18	[illegible]	26 44 21.6	[illegible]
12	5 2 17.82	[illegible]	26 45 35.8	[illegible]
13	5 4 31.57	[illegible]	26 46 42.2	[illegible]
14	5 6 45.42	[illegible]	26 47 40.8	[illegible]
15	5 8 59.38	[illegible]	26 48 31.5	[illegible]
16	5 11 13.44	[illegible]	26 49 14.4	[illegible]
17	5 13 27.59	[illegible]	26 49 49.4	[illegible]
18	5 15 41.83	[illegible]	26 50 16.5	[illegible]
19	5 17 56.15	[illegible]	26 50 35.7	[illegible]
20	5 20 10.56	[illegible]	26 50 47.0	[illegible]
21	5 22 25.05	[illegible]	26 50 50.4	[illegible]
22	5 24 39.62	[illegible]	26 50 45.8	[illegible]
23	5 26 54.26	[illegible]	N.26 50 33.2	[illegible]

SUNDAY 22.

Hour	Right Ascension	Diff for 1 Minute	Declination	Diff for 1 Minute
0	5 29 8.97	[illegible]	N 26 50 12.7	[illegible]
1	5 31 23.74	[illegible]	26 49 44.2	[illegible]
2	5 33 38.58	[illegible]	26 49 7.7	[illegible]
3	5 35 53.47	[illegible]	26 48 23.1	[illegible]
4	5 38 8.41	[illegible]	26 47 30.5	[illegible]
5	5 40 23.40	[illegible]	26 46 29.9	[illegible]
6	5 42 38.44	[illegible]	26 45 21.3	[illegible]
7	5 44 53.52	[illegible]	26 44 4.6	[illegible]
8	5 47 8.64	[illegible]	26 42 39.9	[illegible]
9	5 49 23.79	[illegible]	26 41 7.1	[illegible]
10	5 51 38.97	[illegible]	26 39 26.3	[illegible]
11	5 53 54.18	[illegible]	26 37 37.4	[illegible]
12	5 56 9.40	[illegible]	26 35 40.4	[illegible]
13	5 58 24.64	[illegible]	26 33 35.4	[illegible]
14	6 0 39.90	[illegible]	26 31 22.3	[illegible]
15	6 2 55.17	[illegible]	26 29 1.1	[illegible]
16	6 5 10.44	[illegible]	26 26 31.8	[illegible]
17	6 7 25.72	[illegible]	26 23 54.5	[illegible]
18	6 9 40.99	[illegible]	26 21 9.1	[illegible]
19	6 11 56.26	[illegible]	26 18 15.7	[illegible]
20	6 14 11.52	[illegible]	26 15 14.2	[illegible]
21	6 16 26.76	[illegible]	26 12 4.6	[illegible]
22	6 18 41.99	[illegible]	26 8 47.0	[illegible]
23	6 20 57.19	[illegible]	26 5 21.4	[illegible]
24	6 23 12.37	[illegible]	N 26 1 47.7	[illegible]

MONDAY 23.

Hour	Right Ascension	Diff for 1 Minute	Declination	Diff for 1 Minute
	h m s	s	° ′ ″	″
0	6 23 12.37	[illegible]	N 26 1 47.7	[illegible]
1	6 25 27.52	[illegible]	25 58 6.0	[illegible]
2	6 27 42.64	[illegible]	25 54 16.3	[illegible]
3	6 29 57.73	[illegible]	25 50 18.5	[illegible]
4	6 32 12.78	[illegible]	25 46 12.7	[illegible]
5	6 34 27.78	[illegible]	25 41 59.0	[illegible]
6	6 36 42.74	[illegible]	25 37 37.3	[illegible]
7	6 38 57.65	[illegible]	25 33 7.6	[illegible]
8	6 41 12.50	[illegible]	25 28 30.0	[illegible]
9	6 43 27.30	[illegible]	25 23 44.4	[illegible]
10	6 45 42.04	[illegible]	25 18 50.9	[illegible]
11	6 47 56.72	[illegible]	25 13 49.5	[illegible]
12	6 50 11.32	[illegible]	25 8 40.1	[illegible]
13	6 52 25.86	[illegible]	25 3 22.9	[illegible]
14	6 54 40.33	[illegible]	24 57 57.9	[illegible]
15	6 56 54.72	[illegible]	24 52 25.0	[illegible]
16	6 59 9.04	[illegible]	24 46 44.3	[illegible]
17	7 1 23.27	[illegible]	24 40 55.8	[illegible]
18	7 3 37.42	[illegible]	24 34 59.5	[illegible]
19	7 5 51.48	[illegible]	24 28 55.5	[illegible]
20	7 8 5.44	[illegible]	24 22 43.7	[illegible]
21	7 10 19.32	[illegible]	24 16 24.2	[illegible]
22	7 12 33.10	[illegible]	24 9 57.1	[illegible]
23	7 14 46.78	[illegible]	N.24 3 22.3	[illegible]

TUESDAY 24.

Hour	Right Ascension	Diff for 1 Minute	Declination	Diff for 1 Minute
0	7 17 0.36	[illegible]	N.23 56 39.8	[illegible]
1	7 19 13.84	[illegible]	23 49 49.7	[illegible]
2	7 21 27.21	[illegible]	23 42 52.1	[illegible]
3	7 23 40.48	[illegible]	23 35 47.0	[illegible]
4	7 25 53.63	[illegible]	23 28 34.3	[illegible]
5	7 28 6.68	[illegible]	23 21 14.1	[illegible]
6	7 30 19.61	[illegible]	23 13 46.4	[illegible]
7	7 32 32.42	[illegible]	23 6 11.4	[illegible]
8	7 34 45.12	[illegible]	22 58 28.9	[illegible]
9	7 36 57.70	[illegible]	22 50 39.1	[illegible]
10	7 39 10.15	[illegible]	22 42 42.0	[illegible]
11	7 41 22.48	[illegible]	22 34 37.6	[illegible]
12	7 43 34.69	[illegible]	22 26 25.9	[illegible]
13	7 45 46.77	[illegible]	22 18 7.0	[illegible]
14	7 47 58.73	[illegible]	22 9 40.9	[illegible]
15	7 50 10.55	[illegible]	22 1 7.7	[illegible]
16	7 52 22.25	[illegible]	21 52 27.3	[illegible]
17	7 54 33.81	[illegible]	21 43 39.9	[illegible]
18	7 56 45.24	[illegible]	21 34 45.5	[illegible]
19	7 58 56.54	[illegible]	21 25 44.0	[illegible]
20	8 1 7.70	[illegible]	21 16 35.6	[illegible]
21	8 3 18.73	[illegible]	21 7 20.3	[illegible]
22	8 5 29.62	[illegible]	20 57 58.2	[illegible]
23	8 7 40.37	[illegible]	20 48 [illegible]	[illegible]
24	8 9 50.98	[illegible]	N.20 38 53.5	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 25.					**FRIDAY 27.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	8 9 50.98	2.1757	N.20 38 53.5	9.652	0	9 51 45.21	2.0783	N.11 2 2.2	14.015
1	8 12 1.46	2.1735	20 29 11.0	9.764	1	9 53 49.87	2.0771	10 47 59.3	14.081
2	8 14 11.80	2.1712	20 19 21.8	9.875	2	9 55 54.46	2.0759	10 33 52.5	14.146
3	8 16 22.00	2.1688	20 9 26.0	9.985	3	9 57 58.98	2.0747	10 19 41.8	14.209
4	8 18 32.06	2.1665	19 59 23.6	10.095	4	10 0 3.42	2.0735	10 5 27.4	14.271
5	8 20 41.98	2.1642	19 49 14.6	10.204	5	10 2 7.80	2.0725	9 51 9.3	14.332
6	8 22 51.76	2.1618	19 38 59.1	10.312	6	10 4 12.12	2.0714	9 36 47.6	14.392
7	8 25 1.40	2.1595	19 28 37.2	10.418	7	10 6 16.37	2.0704	9 22 22.3	14.451
8	8 27 10.90	2.1571	19 18 8.9	10.525	8	10 8 20.57	2.0695	9 7 53.5	14.508
9	8 29 20.25	2.1548	19 7 34.2	10.631	9	10 10 24.71	2.0686	8 53 21.3	14.565
10	8 31 29.47	2.1525	18 56 53.2	10.736	10	10 12 28.80	2.0677	8 38 45.7	14.620
11	8 33 38.55	2.1501	18 46 5.9	10.839	11	10 14 32.84	2.0669	8 24 6.9	14.673
12	8 35 47.48	2.1478	18 35 12.5	10.942	12	10 16 36.83	2.0662	8 9 24.9	14.726
13	8 37 56.28	2.1455	18 24 12.9	11.044	13	10 18 40.78	2.0656	7 54 39.8	14.778
14	8 40 4.94	2.1432	18 13 7.2	11.146	14	10 20 44.70	2.0650	7 39 51.6	14.828
15	8 42 13.46	2.1409	18 1 55.4	11.247	15	10 22 48.58	2.0643	7 25 0.4	14.877
16	8 44 21.85	2.1387	17 50 37.6	11.347	16	10 24 52.42	2.0638	7 10 6.3	14.925
17	8 46 30.10	2.1364	17 39 13.8	11.445	17	10 26 56.24	2.0634	6 55 9.4	14.972
18	8 48 38.22	2.1342	17 27 44.2	11.543	18	10 29 0.03	2.0630	6 40 9.7	15.017
19	8 50 46.20	2.1318	17 16 8.7	11.639	19	10 31 3.80	2.0627	6 25 7.4	15.060
20	8 52 54.04	2.1296	17 4 27.5	11.735	20	10 33 7.56	2.0625	6 10 2.5	15.103
21	8 55 1.75	2.1274	16 52 40.5	11.831	21	10 35 11.30	2.0623	5 54 55.0	15.145
22	8 57 9.33	2.1253	16 40 47.8	11.925	22	10 37 15.03	2.0622	5 39 45.1	15.185
23	8 59 16.78	2.1232	N.16 28 49.5	12.018	23	10 39 18.75	2.0620	N. 5 24 32.8	15.224
	THURSDAY 26.					**SATURDAY 28.**			
0	9 1 24.11	[illegible]	N.16 16 45.7	[illegible]	0	10 41 22.47	[illegible]	N. 5 9 18.2	[illegible]
1	9 3 31.30	[illegible]	16 4 36.4	[illegible]	1	10 43 26.19	[illegible]	4 54 1.4	[illegible]
2	9 5 38.37	[illegible]	15 52 21.6	[illegible]	2	10 45 29.91	[illegible]	4 38 42.5	[illegible]
3	9 7 45.31	[illegible]	15 40 1.4	[illegible]	3	10 47 33.65	[illegible]	4 23 21.5	[illegible]
4	9 9 52.13	[illegible]	15 27 35.9	[illegible]	4	10 49 37.39	[illegible]	4 7 58.6	[illegible]
5	9 11 58.82	[illegible]	15 15 5.2	12.556	5	10 51 41.15	[illegible]	3 52 33.8	[illegible]
6	9 14 5.40	[illegible]	15 2 [illegible]	12.643	6	10 53 44.93	[illegible]	3 37 7.1	[illegible]
7	9 16 11.85	[illegible]	14 49 48.0	[illegible]	7	10 55 48.73	[illegible]	3 21 38.7	[illegible]
8	9 18 18.18	[illegible]	14 37 1.8	[illegible]	8	10 57 52.55	[illegible]	3 6 8.6	[illegible]
9	9 20 24.40	[illegible]	14 24 10.6	[illegible]	9	10 59 56.41	[illegible]	2 50 37.0	[illegible]
10	9 22 30.51	[illegible]	14 11 14.4	[illegible]	10	11 2 0.31	2.0653	2 35 3.8	[illegible]
11	9 24 36.50	[illegible]	13 58 13.3	[illegible]	11	11 4 4.24	[illegible]	2 19 29.2	[illegible]
12	9 26 [illegible]	[illegible]	13 45 [illegible]	[illegible]	12	11 6 8.22	[illegible]	2 3 53.3	[illegible]
13	9 28 48.16	[illegible]	13 31 [illegible]	[illegible]	13	11 8 12.24	[illegible]	1 48 16.1	[illegible]
14	9 30 53.83	[illegible]	13 18 41.1	[illegible]	14	11 10 16.32	[illegible]	1 32 37.8	[illegible]
15	9 32 [illegible]	[illegible]	13 5 21.0	[illegible]	15	11 12 20.45	[illegible]	1 16 58.3	[illegible]
16	9 35 [illegible]	[illegible]	12 51 [illegible]	[illegible]	16	11 14 [illegible]	[illegible]	1 1 17.9	[illegible]
17	9 37 10.23	[illegible]	12 38 [illegible]	[illegible]	17	11 16 [illegible]	[illegible]	0 45 36.5	[illegible]
18	9 39 [illegible]	[illegible]	12 24 [illegible]	[illegible]	18	11 18 [illegible]	[illegible]	0 29 54.3	[illegible]
19	9 41 [illegible]	[illegible]	12 11 [illegible]	[illegible]	19	11 20 [illegible]	[illegible]	N. 0 14 11.4	[illegible]
20	9 43 [illegible]	[illegible]	11 57 [illegible]	[illegible]	20	11 22 [illegible]	[illegible]	S. 0 1 32.2	[illegible]
21	9 45 [illegible]	[illegible]	11 43 [illegible]	[illegible]	21	11 24 [illegible]	[illegible]	0 17 16.4	[illegible]
22	9 47 [illegible]	[illegible]	11 29 [illegible]	[illegible]	22	11 26 [illegible]	[illegible]	0 33 1.1	[illegible]
23	9 49 [illegible]	[illegible]	11 16 2.1	[illegible]	23	11 28 [illegible]	[illegible]	0 48 46.8	[illegible]
24	9 51 45.21	[illegible]	N.11 2 2.2	[illegible]	24	11 31 [illegible]	[illegible]	S. 1 4 32.5	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 29.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ' "	Diff. for 1 Minute "
0	11 31 0.79	[illegible]	S. 1 4 31.5	[illegible]
1	11 33 5.70	[illegible]	1 20 17.1	[illegible]
2	11 35 10.71	[illegible]	1 36 2.9	[illegible]
3	11 37 15.83	[illegible]	1 51 48.8	[illegible]
4	11 39 21.06	[illegible]	2 7 34.6	[illegible]
5	11 41 26.40	[illegible]	2 23 20.3	[illegible]
6	11 43 31.86	[illegible]	2 39 5.8	[illegible]
7	11 45 37.45	[illegible]	2 54 51.0	[illegible]
8	11 47 43.16	[illegible]	3 10 35.8	[illegible]
9	11 49 49.00	[illegible]	3 26 20.2	[illegible]
10	11 51 54.97	[illegible]	3 42 4.0	[illegible]
11	11 54 1.08	[illegible]	3 57 47.2	[illegible]
12	11 56 7.34	[illegible]	4 13 29.6	[illegible]
13	11 58 13.74	[illegible]	4 29 11.2	[illegible]
14	12 0 20.30	[illegible]	4 44 51.9	[illegible]
15	12 2 27.02	[illegible]	5 0 31.6	[illegible]
16	12 4 33.89	[illegible]	5 16 10.2	[illegible]
17	12 6 40.93	[illegible]	5 31 47.6	[illegible]
18	12 8 48.14	[illegible]	5 47 23.7	[illegible]
19	12 10 55.52	[illegible]	6 2 58.4	[illegible]
20	12 13 3.07	[illegible]	6 18 31.6	[illegible]
21	12 15 10.81	[illegible]	6 34 3.3	[illegible]
22	12 17 18.74	[illegible]	6 49 33.5	[illegible]
23	12 19 26.85	[illegible]	S. 7 5 1.6	[illegible]

MONDAY 30.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ' "	Diff. for 1 Minute "
0	12 21 35.16	[illegible]	S. 7 20 28.1	[illegible]
1	12 23 43.67	[illegible]	7 35 52.6	[illegible]
2	12 25 52.38	[illegible]	7 51 15.1	[illegible]
3	12 28 1.29	[illegible]	8 6 35.5	[illegible]
4	12 30 10.41	[illegible]	8 21 53.7	[illegible]
5	12 32 19.75	[illegible]	8 37 9.5	[illegible]
6	12 34 [illegible]	[illegible]	8 52 22.9	[illegible]
7	12 36 [illegible]	[illegible]	9 7 33.8	[illegible]
8	12 38 [illegible]	[illegible]	9 22 42.1	[illegible]
9	12 40 52.34	[illegible]	9 37 47.8	[illegible]
10	12 43 9.81	[illegible]	9 52 50.6	[illegible]
11	12 45 20.52	[illegible]	10 7 50.6	[illegible]
12	12 47 31.47	[illegible]	10 22 47.5	[illegible]
13	12 49 42.67	[illegible]	10 37 41.4	[illegible]
14	12 51 54.11	[illegible]	10 52 32.1	[illegible]
15	12 54 [illegible]	[illegible]	11 7 19.5	[illegible]
16	12 56 [illegible]	[illegible]	11 22 3.5	[illegible]
17	12 58 [illegible]	[illegible]	11 36 44.0	[illegible]
18	13 0 42.45	[illegible]	11 51 21.0	[illegible]
19	13 2 55.19	[illegible]	12 5 54.3	[illegible]
20	13 5 [illegible]	[illegible]	12 20 23.9	[illegible]
21	13 7 21.43	[illegible]	12 34 49.6	[illegible]
22	13 9 35.05	[illegible]	12 49 11.3	[illegible]
23	13 11 [illegible]	[illegible]	13 3 29.0	[illegible]
24	13 14 3.08	[illegible]	S. 13 17 42.5	[illegible]

TUESDAY 31.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ' "	Diff. for 1 Minute "
0	13 14 3.08	[illegible]	S. 13 17 42.5	[illegible]
1	13 16 17.43	[illegible]	13 31 51.7	14.117
2	13 18 32.13	[illegible]	13 45 56.6	[illegible]
3	13 20 47.12	[illegible]	13 59 57.0	[illegible]
4	13 23 2.41	[illegible]	14 13 52.9	[illegible]
5	13 25 18.00	[illegible]	14 27 44.1	[illegible]
6	13 27 33.88	[illegible]	14 41 30.6	[illegible]
7	13 29 50.07	[illegible]	14 55 12.2	[illegible]
8	13 32 6.57	[illegible]	15 8 48.9	[illegible]
9	13 34 23.37	[illegible]	15 22 20.5	[illegible]
10	13 36 40.49	[illegible]	15 35 47.0	[illegible]
11	13 38 57.92	[illegible]	15 49 8.2	[illegible]
12	13 41 15.66	[illegible]	16 2 24.1	[illegible]
13	13 43 33.72	[illegible]	16 15 34.5	[illegible]
14	13 45 52.09	[illegible]	16 28 39.3	[illegible]
15	13 48 10.79	[illegible]	16 41 38.5	[illegible]
16	13 50 29.81	[illegible]	16 54 32.0	[illegible]
17	13 52 49.15	[illegible]	17 7 19.6	[illegible]
18	13 55 [illegible]	[illegible]	17 20 1.3	[illegible]
19	13 57 [illegible]	[illegible]	17 32 36.9	[illegible]
20	13 59 49.15	[illegible]	17 45 6.4	[illegible]
21	14 2 9.80	[illegible]	17 57 29.7	[illegible]
22	14 4 30.78	[illegible]	18 9 46.6	[illegible]
23	14 6 52.10	[illegible]	S. 18 21 57.1	[illegible]

WEDNESDAY, SEPTEMBER 1.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ' "	Diff. for 1 Minute "
0	14 9 13.76	[illegible]	S. 18 34 1.0	[illegible]

PHASES OF THE MOON.

			d	h	m
☽	First Quarter . . .	Aug.	5	6	24.4
○	Full Moon		12	2	22.6
☾	Last Quarter		19	20	29.3
●	New Moon		27	15	29.1

			d	h
☾	Perigee	Aug.	7	8.9
☾	Apogee		19	21.8

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	34 50 12	2798	36 24 43	2789	37 59 25	2782	39 34 17	2774
	Spica	E.	38 15 17	2498	36 34 1	2492	34 52 36	2486	33 11 3	2480
	Saturn	E.	70 10 5	2521	68 29 21	2514	66 48 27	2508	65 7 25	2502
	Antares	E.	83 58 14	2481	82 16 34	2473	80 34 43	2466	78 52 42	2459
2	Sun	W.	47 31 7	2737	49 6 58	2730	50 42 58	2722	52 19 8	2716
	Saturn	E.	56 40 13	2475	54 58 25	2471	53 16 31	2467	51 34 31	2463
	Antares	E.	70 20 6	2424	68 37 5	2418	66 53 56	2411	65 10 37	2405
3	Sun	W.	60 22 5	2684	61 59 6	2679	63 36 14	2673	65 13 30	2667
	Jupiter	W.	30 2 45	2481	31 44 25	2472	33 26 17	2463	35 8 22	2455
	Mars	W.	26 15 27	2632	27 53 38	2621	29 32 5	2610	31 10 46	2601
	Antares	E.	56 31 54	2376	54 47 45	2370	53 3 27	2364	51 19 1	2359
	α Aquilæ	E.	108 40 26	3062	107 11 30	3044	105 42 12	3027	104 12 33	3011
4	Sun	W.	73 21 44	2640	74 59 44	2635	76 37 51	2630	78 16 5	2626
	Jupiter	W.	43 41 30	2419	45 24 37	2414	47 7 52	2408	48 51 16	2403
	Mars	W.	39 27 12	2561	41 7 1	2554	42 46 59	2548	44 27 6	2542
	Antares	E.	42 35 0	2334	40 49 50	2329	39 4 33	2325	37 19 10	2320
	α Aquilæ	E.	96 39 59	2954	95 8 48	2945	93 37 26	2938	92 5 55	2932
5	Sun	W.	86 28 48	2603	88 7 39	2599	89 46 35	2595	91 25 37	2591
	Jupiter	W.	57 30 8	2378	59 14 15	2373	60 58 29	2368	62 42 49	2364
	Mars	W.	52 49 39	2515	54 30 31	2510	56 11 30	2506	57 52 35	2501
	α Aquilæ	E.	84 26 57	2919	82 55 2	2920	81 23 9	2923	79 51 19	2926
	Fomalhaut	E.	108 59 12	2716	107 22 53	2704	105 46 19	2693	104 9 30	2684
6	Sun	W.	99 42 2	2574	101 21 33	2572	103 1 7	2569	104 40 45	2566
	Jupiter	W.	71 25 51	2347	73 10 42	2344	74 55 38	2341	76 40 38	2338
	Mars	W.	66 19 28	2482	68 1 6	2480	69 42 48	2477	71 24 34	2474
	Spica	W.	31 37 20	2294	33 23 28	2289	35 9 44	2285	36 56 6	2281
	α Aquilæ	E.	72 13 47	2964	70 42 49	2977	69 12 7	2991	67 41 43	3006
	Fomalhaut	E.	96 2 32	2648	94 24 42	2643	92 46 46	2639	91 8 44	2637
7	Sun	W.	112 59 43	2556	114 39 38	2555	116 19 35	2553	117 59 34	2553
	Jupiter	W.	85 26 27	2328	87 11 45	2328	88 57 4	2326	90 42 25	2326
	Mars	W.	79 54 16	2463	81 36 21	2462	83 18 27	2461	85 0 35	2460
	Spica	W.	45 49 10	2266	47 35 59	2265	49 22 50	2263	51 9 44	2262
	α Aquilæ	E.	60 15 46	3125	58 48 7	3158	57 21 8	3194	55 54 52	3235
	Fomalhaut	E.	82 58 2	2635	81 19 54	2638	79 41 50	2641	78 3 51	2645
	α Pegasi	E.	104 30 13	2427	102 47 17	2424	101 4 16	2421	99 21 11	2418
8	Mars	W.	93 31 24	2460	95 13 33	2461	96 55 41	2462	98 37 47	2465
	Spica	W.	60 4 32	2260	61 51 30	2260	63 38 28	2261	65 25 25	2262
	Fomalhaut	E.	69 55 50	2684	68 18 48	2695	66 42 2	2709	65 5 34	2723
	α Pegasi	E.	90 45 7	2414	89 1 52	2415	87 18 39	2417	85 35 28	2419
9	Spica	W.	74 19 33	2278	76 6 12	2277	77 52 46	2280	79 39 15	2283
	Saturn	W.	42 48 24	2342	44 33 22	2341	46 18 22	2341	48 3 22	2342
	Antares	W.	28 28 53	2266	30 15 42	2270	32 2 26	2274	33 49 4	2277
	Fomalhaut	E.	57 8 54	2826	55 35 0	2854	54 1 42	2884	52 29 3	2919
	α Pegasi	E.	77 0 36	2439	75 17 57	2445	73 35 27	2453	71 53 7	2460

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	41 9 19	[illegible]	42 44 32	[illegible]	44 19 54	[illegible]	45 55 26	[illegible]
	Spica	E.	31 29 22	[illegible]	29 47 34	[illegible]	28 5 41	[illegible]	26 23 43	[illegible]
	Saturn	E.	63 26 14	[illegible]	61 44 55	[illegible]	60 3 28	[illegible]	58 21 54	[illegible]
	Antares	E.	77 10 31	[illegible]	75 28 9	[illegible]	73 45 38	[illegible]	72 2 57	[illegible]
2	Sun	W.	53 55 26	[illegible]	55 31 53	[illegible]	57 8 29	[illegible]	58 45 13	[illegible]
	Saturn	E.	49 52 26	[illegible]	48 10 16	[illegible]	46 28 3	[illegible]	44 45 47	[illegible]
	Antares	E.	63 27 10	[illegible]	61 43 34	[illegible]	59 59 49	[illegible]	58 15 56	[illegible]
3	Sun	W.	66 50 54	[illegible]	68 28 26	[illegible]	70 6 5	[illegible]	71 43 51	[illegible]
	Jupiter	W.	36 50 38	[illegible]	38 33 6	[illegible]	40 15 44	[illegible]	41 58 32	[illegible]
	Mars	W.	32 49 40	[illegible]	34 28 46	[illegible]	36 8 4	[illegible]	37 47 33	[illegible]
	Antares	E.	49 34 28	[illegible]	47 49 47	[illegible]	46 4 59	[illegible]	44 20 3	[illegible]
	α Aquilæ	E.	102 42 34	[illegible]	101 12 18	[illegible]	99 41 46	[illegible]	98 10 59	[illegible]
4	Sun	W.	79 54 25	[illegible]	81 32 51	[illegible]	83 11 24	[illegible]	84 50 3	[illegible]
	Jupiter	W.	50 34 47	[illegible]	52 18 26	[illegible]	54 2 13	[illegible]	55 46 7	[illegible]
	Mars	W.	46 7 21	[illegible]	47 47 44	[illegible]	49 28 15	[illegible]	51 8 53	[illegible]
	Antares	E.	35 33 40	[illegible]	33 48 4	[illegible]	32 2 21	[illegible]	30 16 32	[illegible]
	α Aquilæ	E.	90 34 17	[illegible]	89 2 33	[illegible]	87 30 44	[illegible]	85 58 51	[illegible]
5	Sun	W.	93 4 44	[illegible]	94 43 57	[illegible]	96 23 14	[illegible]	98 2 36	[illegible]
	Jupiter	W.	64 27 15	[illegible]	66 11 46	[illegible]	67 56 23	[illegible]	69 41 5	[illegible]
	Mars	W.	59 33 47	[illegible]	61 15 4	[illegible]	62 56 27	[illegible]	64 37 55	[illegible]
	α Aquilæ	E.	78 19 33	[illegible]	76 47 53	[illegible]	75 16 21	[illegible]	73 44 58	[illegible]
	Fomalhaut	E.	102 32 [illegible]	[illegible]	100 55 14	[illegible]	99 17 49	[illegible]	97 40 15	[illegible]
6	Sun	W.	[illegible] 20 27	[illegible]	108 0 12	[illegible]	109 40 0	[illegible]	111 19 50	[illegible]
	Jupiter	W.	78 25 42	[illegible]	80 10 49	[illegible]	81 55 59	[illegible]	83 41 12	[illegible]
	Mars	W.	[illegible] 6 24	[illegible]	74 48 17	[illegible]	76 30 14	[illegible]	78 12 14	[illegible]
	Spica	W.	38 42 34	[illegible]	40 29 7	[illegible]	42 15 44	[illegible]	44 2 25	[illegible]
	α Aquilæ	E.	66 11 40	[illegible]	64 41 59	[illegible]	63 12 45	[illegible]	61 44 0	[illegible]
	Fomalhaut	E.	89 30 39	[illegible]	87 52 31	[illegible]	86 14 21	[illegible]	84 36 11	[illegible]
7	Sun	W.	119 [illegible] 33	[illegible]	121 19 33	[illegible]	122 59 34	[illegible]	124 39 35	[illegible]
	Jupiter	W.	92 27 47	[illegible]	94 13 10	[illegible]	95 58 33	[illegible]	97 43 56	[illegible]
	Mars	W.	86 42 44	[illegible]	88 24 54	[illegible]	90 7 4	[illegible]	91 49 14	[illegible]
	Spica	W.	52 56 [illegible]	[illegible]	54 43 [illegible]	[illegible]	56 30 14	[illegible]	58 17 33	[illegible]
	α Aquilæ	E.	54 [illegible] [illegible]	[illegible]	53 4 [illegible]	[illegible]	51 41 10	[illegible]	50 18 35	[illegible]
	Fomalhaut	E.	76 25 57	[illegible]	74 48 11	[illegible]	73 10 33	[illegible]	71 33 6	[illegible]
	α Pegasi	E.	97 38 2	[illegible]	95 54 51	[illegible]	94 11 37	[illegible]	92 28 22	[illegible]
8	Mars	W.	100 19 50	[illegible]	102 1 51	[illegible]	103 43 48	[illegible]	105 25 42	[illegible]
	Spica	W.	[illegible] 12 20	[illegible]	[illegible] [illegible] 11	[illegible]	70 46 3	[illegible]	72 32 50	[illegible]
	Fomalhaut	E.	[illegible] [illegible] 25	[illegible]	61 51 [illegible]	[illegible]	60 1[illegible] 16	[illegible]	58 43 20	[illegible]
	α Pegasi	E.	[illegible] 58 20	[illegible]	[illegible] 9 15	[illegible]	[illegible] 26 16	[illegible]	78 43 23	[illegible]
9	Spica	W.	[illegible]	[illegible]	[illegible] 11 56	[illegible]	84 58 7	[illegible]	86 44 10	[illegible]
	Saturn	W.	[illegible]	[illegible]	51 [illegible]	[illegible]	53 18 12	[illegible]	55 3 2	[illegible]
	Antares	W.	[illegible] 25 [illegible]	[illegible]	37 [illegible] 3	[illegible]	[illegible] 8 23	[illegible]	40 54 35	[illegible]
	Fomalhaut	E.	[illegible]	[illegible]	[illegible] 26 0	[illegible]	47 55 44	[illegible]	46 26 25	[illegible]
	α Pegasi	E.	70 1[illegible] 57	[illegible]	[illegible] 23 0	[illegible]	[illegible] 47 15	[illegible]	65 5 44	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	Spica	W.	88 30 5	2309	90 15 52	2315	92 1 30	2321	93 46 59	2328
	SATURN	W.	56 47 47	2355	58 32 26	2359	60 16 59	2364	62 1 25	2370
	Antares	W.	42 40 40	2302	44 26 36	2309	46 12 23	2315	47 58 1	2322
	α Pegasi	E.	63 24 29	2511	61 43 31	2524	60 2 51	2538	58 22 31	2554
	α Arietis	E.	105 16 45	2318	103 31 12	2324	101 45 47	2331	100 0 32	2337
11	SATURN	W.	70 41 21	2405	72 24 49	2413	74 8 5	2422	75 51 8	2431
	Antares	W.	56 43 30	2362	58 28 0	2371	60 12 17	2380	61 56 21	2389
	α Pegasi	E.	50 6 49	2653	48 29 6	2678	46 51 56	2705	45 15 23	2735
	α Arietis	E.	91 16 50	2376	89 32 41	2384	87 48 44	2394	86 5 1	2404
12	SATURN	W.	84 23 2	2482	86 4 41	2494	87 46 3	2505	89 27 9	2517
	Antares	W.	70 33 8	2441	72 15 44	2453	73 58 3	2465	75 40 6	2477
	α Arietis	E.	77 30 2	2457	75 47 48	2469	74 5 51	2480	72 24 10	2493
	Aldebaran	E.	109 39 18	2515	107 58 26	2525	106 17 47	2535	104 37 23	2545
13	SATURN	W.	97 48 22	2581	99 27 43	2594	101 6 46	2608	102 45 30	2622
	Antares	W.	84 6 4	2539	85 46 23	2553	87 26 23	2566	89 6 5	2579
	α Arietis	E.	64 0 11	2558	62 20 18	2572	60 40 44	2585	59 1 29	2599
	Aldebaran	E.	96 19 14	2605	94 40 26	2618	93 1 55	2631	91 23 42	2645
14	Antares	W.	97 19 58	2648	98 57 48	2661	100 35 20	2675	102 12 33	2689
	α Aquilæ	W.	49 58 54	3797	51 13 59	3758	52 29 45	3725	53 46 6	3696
	α Arietis	E.	50 50 6	2672	49 12 49	2688	47 35 53	2703	45 59 17	2719
	Aldebaran	E.	83 17 14	2713	81 40 52	2729	80 4 50	2743	78 29 7	2758
15	α Aquilæ	W.	60 14 18	3600	61 32 52	3588	62 51 39	3579	64 10 36	3571
	Fomalhaut	W.	35 50 21	4043	37 1 18	3965	38 13 32	3897	39 26 55	3837
	α Arietis	E.	38 1 30	2798	36 27 0	2815	34 52 52	2832	33 19 6	2849
	Aldebaran	E.	70 35 24	2832	69 1 38	2848	67 28 12	2862	65 55 5	2878
	VENUS	E.	102 35 31	3168	101 8 43	3182	99 42 12	3197	98 15 59	3211
16	α Aquilæ	W.	70 46 55	3555	72 6 19	3555	73 25 43	3555	74 45 6	3557
	Fomalhaut	W.	45 46 48	3657	47 4 42	3611	48 23 4	3588	49 41 51	3569
	Aldebaran	E.	58 14 24	2954	56 43 14	2970	55 12 24	2985	53 41 53	3001
	VENUS	E.	91 9 6	3281	89 44 32	3294	88 20 13	3307	86 56 10	3319
	Pollux	E.	100 10 48	2882	98 38 6	2894	97 5 39	2906	95 33 28	2917
17	α Aquilæ	W.	81 21 15	3576	82 40 15	3582	83 59 9	3588	85 17 56	3594
	Fomalhaut	W.	56 20 20	3502	57 40 42	3494	59 1 13	3487	60 21 52	3480
	α Pegasi	W.	33 35 19	3514	34 55 28	3482	36 16 12	3454	37 37 27	3431
	Aldebaran	E.	46 14 13	3082	44 45 41	3098	43 17 29	3116	41 49 39	3133
	VENUS	E.	79 59 26	3379	78 36 45	3390	77 14 17	3400	75 52 0	3410
	Pollux	E.	87 56 3	2971	86 25 14	2981	84 54 37	2990	83 24 12	2999
	SUN	E.	121 21 21	3310	119 57 21	3321	118 33 34	3332	117 9 59	3341
18	α Aquilæ	W.	91 50 3	3632	93 8 3	3639	94 25 55	3648	95 43 37	3657
	Fomalhaut	W.	67 6 33	3461	68 27 41	3458	69 48 52	3455	71 10 6	3454
	α Pegasi	W.	44 29 7	3356	45 52 14	3345	47 15 33	3337	48 39 2	3328
	VENUS	E.	69 3 17	3454	67 42 0	3462	66 20 53	3468	64 59 53	3473
	Pollux	E.	75 54 48	3039	74 25 24	3047	72 56 9	3053	71 27 2	3060
	SUN	E.	110 14 42	3384	108 52 7	3391	107 29 40	3398	106 7 21	3404

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LUNAR DISTANCES.

Day of the Month	Name and Direction of Object.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	Spica	W.	95 32 17	[illegible]	97 17 25	[illegible]	99 2 22	[illegible]	100 47 7	[illegible]
	Saturn	W.	63 45 43	[illegible]	65 29 52	[illegible]	67 13 52	[illegible]	68 57 42	[illegible]
	Antares	W.	49 43 29	[illegible]	51 28 47	[illegible]	53 13 53	[illegible]	54 58 48	[illegible]
	α Pegasi	E.	56 42 33	[illegible]	55 2 58	[illegible]	53 23 47	[illegible]	51 45 4	[illegible]
	α Arietis	E.	98 15 26	[illegible]	96 30 30	[illegible]	94 45 45	[illegible]	93 1 11	[illegible]
11	Saturn	W.	77 33 59	[illegible]	79 16 36	[illegible]	80 58 59	[illegible]	82 41 8	[illegible]
	Antares	W.	63 40 12	[illegible]	65 23 48	[illegible]	67 7 10	[illegible]	68 50 17	[illegible]
	α Pegasi	E.	43 39 29	[illegible]	42 4 19	[illegible]	40 29 55	[illegible]	38 56 22	[illegible]
	α Arietis	E.	84 21 32	[illegible]	82 38 17	[illegible]	80 55 17	[illegible]	79 12 32	[illegible]
12	Saturn	W.	91 7 58	[illegible]	92 48 30	[illegible]	94 28 45	[illegible]	96 8 42	[illegible]
	Antares	W.	77 21 52	[illegible]	79 3 21	[illegible]	80 44 33	[illegible]	82 25 27	[illegible]
	α Arietis	E.	70 42 47	[illegible]	69 1 41	[illegible]	67 20 53	[illegible]	65 40 23	[illegible]
	Aldebaran	E.	102 57 13	[illegible]	101 17 19	[illegible]	99 37 41	[illegible]	97 58 19	[illegible]
13	Saturn	W.	104 23 55	[illegible]	106 2 1	[illegible]	107 39 48	[illegible]	109 17 15	[illegible]
	Antares	W.	90 45 29	[illegible]	92 24 34	[illegible]	94 3 21	[illegible]	95 41 49	[illegible]
	α Arietis	E.	57 22 33	[illegible]	55 43 57	[illegible]	54 5 40	[illegible]	52 27 43	[illegible]
	Aldebaran	E.	89 45 48	[illegible]	88 8 12	[illegible]	86 30 54	[illegible]	84 53 55	[illegible]
14	Antares	W.	103 49 28	[illegible]	105 26 4	[illegible]	107 2 21	[illegible]	108 38 20	[illegible]
	α Aquilæ	W.	55 2 57	[illegible]	56 20 15	[illegible]	57 37 57	[illegible]	58 55 59	[illegible]
	α Arietis	E.	44 23 2	[illegible]	42 47 8	[illegible]	41 11 34	[illegible]	39 36 21	[illegible]
	Aldebaran	E.	76 53 44	[illegible]	75 18 40	[illegible]	73 43 55	[illegible]	72 9 30	[illegible]
15	α Aquilæ	W.	65 29 42	[illegible]	66 48 54	[illegible]	68 8 11	[illegible]	69 27 32	[illegible]
	Fomalhaut	W.	40 41 19	[illegible]	41 56 37	[illegible]	43 12 41	[illegible]	44 29 26	[illegible]
	α Arietis	E.	31 45 42	[illegible]	30 12 41	[illegible]	28 40 5	[illegible]	27 7 53	[illegible]
	Aldebaran	E.	64 22 18	[illegible]	62 49 50	[illegible]	61 17 42	[illegible]	59 45 53	[illegible]
	Venus	E.	96 50 3	[illegible]	95 24 24	[illegible]	93 59 8	[illegible]	92 33 56	[illegible]
16	α Aquilæ	W.	76 4 27	[illegible]	77 23 45	[illegible]	78 43 0	[illegible]	80 2 10	[illegible]
	Fomalhaut	W.	51 0 53	[illegible]	52 20 27	[illegible]	53 40 11	[illegible]	55 0 9	[illegible]
	Aldebaran	E.	52 11 42	[illegible]	50 41 50	[illegible]	49 12 18	[illegible]	47 43 5	[illegible]
	Venus	E.	85 32 21	[illegible]	84 5 47	[illegible]	82 45 26	[illegible]	81 22 19	[illegible]
	Pollux	E.	94 1 31	[illegible]	92 29 49	[illegible]	90 58 20	[illegible]	89 27 5	[illegible]
17	α Aquilæ	W.	86 36 37	[illegible]	87 55 10	[illegible]	89 13 36	[illegible]	90 31 54	[illegible]
	Fomalhaut	W.	61 42 38	[illegible]	63 3 30	[illegible]	64 24 27	[illegible]	65 45 28	[illegible]
	α Pegasi	W.	39 [illegible]	[illegible]	40 21 11	[illegible]	41 43 34	[illegible]	43 6 13	[illegible]
	Aldebaran	E.	40 22 10	[illegible]	38 55 3	[illegible]	37 28 20	[illegible]	36 2 1	[illegible]
	Venus	E.	74 29 55	[illegible]	73 8 0	[illegible]	71 46 16	[illegible]	70 24 42	[illegible]
	Pollux	E.	81 33 58	[illegible]	80 21 55	[illegible]	78 54 3	[illegible]	77 24 21	[illegible]
	Sun	E.	115 46 35	[illegible]	114 23 22	[illegible]	113 0 19	[illegible]	111 37 26	[illegible]
18	α Aquilæ	W.	[illegible] 1 10	[illegible]	[illegible] 18 31	[illegible]	99 35 46	[illegible]	100 52 48	[illegible]
	Fomalhaut	W.	72 31 21	[illegible]	73 52 [illegible]	[illegible]	75 13 56	[illegible]	76 35 16	[illegible]
	α Pegasi	W.	[illegible] 2 41	[illegible]	51 [illegible]	[illegible]	52 50 22	[illegible]	54 14 21	[illegible]
	Venus	E.	[illegible]	[illegible]	62 18 12	[illegible]	60 57 32	[illegible]	59 36 57	[illegible]
	Pollux	E.	[illegible] 3	[illegible]	68 39 11	[illegible]	67 0 25	[illegible]	65 31 45	[illegible]
	Sun	E.	104 45 9	[illegible]	103 23 4	[illegible]	102 1 5	[illegible]	100 39 11	[illegible]

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LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon. ° ′ ″	P. L. of Diff.	IIIh. ° ′ ″	P. L. of Diff.	VIh. ° ′ ″	P. L. of Diff.	IXh. ° ′ ″	P. L. of Diff.
19	α Aquilæ	W.	102 9 39	3707	103 26 19	3718	104 42 47	3729	105 59 3	3741
	Fomalhaut	W.	77 56 37	3448	79 17 59	3447	80 39 22	3446	82 0 46	3446
	α Pegasi	W.	55 38 30	3298	57 2 44	3294	58 27 3	3288	59 51 28	3284
	Venus	E.	58 16 27	3499	56 56 2	3502	55 35 40	3506	54 15 22	3507
	Pollux	E.	64 3 10	3083	62 34 40	3087	61 6 15	3090	59 37 53	3093
	Sun	E.	99 17 22	3428	97 55 37	3431	96 33 56	3434	95 12 18	3437
20	Fomalhaut	W.	88 47 57	3442	90 9 26	3441	91 30 56	3440	92 52 27	3438
	α Pegasi	W.	66 54 53	3260	68 19 51	3256	69 44 54	3251	71 10 3	3246
	α Arietis	W.	23 24 10	3159	24 51 8	3148	26 18 19	3139	27 45 41	3130
	Venus	E.	47 34 19	3512	46 14 8	3511	44 53 56	3510	43 33 43	3508
	Pollux	E.	52 16 45	3102	50 48 36	3102	49 20 28	3102	47 52 20	3102
	Sun	E.	88 24 34	3439	87 3 2	3438	85 41 29	3437	84 19 54	3435
21	Fomalhaut	W.	99 40 21	3434	101 1 59	3433	102 23 38	3433	103 45 17	3432
	α Pegasi	W.	78 17 23	3217	79 43 12	3211	81 9 8	3204	82 35 12	3198
	α Arietis	W.	35 5 1	3091	36 33 21	3084	38 1 50	3076	39 30 29	3068
	Venus	E.	36 51 58	3492	35 31 25	3488	34 10 48	3483	32 50 5	3479
	Pollux	E.	40 31 27	3095	39 3 11	3094	37 34 54	3092	36 6 34	3091
	Sun	E.	77 31 15	3417	76 9 18	3412	74 47 15	3407	73 25 6	3400
22	Fomalhaut	W.	110 33 40	3432	111 55 20	3433	113 16 59	3435	114 38 36	3438
	α Pegasi	W.	89 47 38	3160	91 14 35	3153	92 41 41	3144	94 8 57	3136
	α Arietis	W.	46 56 16	3025	48 25 58	3015	49 55 52	3005	51 25 58	2996
	Aldebaran	W.	17 17 0	3810	18 31 52	3686	19 48 54	3582	21 7 48	3492
	Sun	E.	66 32 27	3364	65 9 29	3354	63 46 20	3345	62 23 1	3337
23	α Pegasi	W.	101 27 52	3092	102 56 11	3083	104 24 41	3074	105 53 22	3066
	α Arietis	W.	58 59 42	2942	60 31 8	2930	62 2 49	2918	63 34 45	2906
	Aldebaran	W.	28 2 11	3219	29 27 58	3180	30 54 31	3146	32 21 45	3114
	Sun	E.	55 23 34	3282	53 59 2	3271	52 34 17	3259	51 9 18	3247
24	α Arietis	W.	71 18 20	2843	72 51 52	2829	74 25 42	2816	75 59 49	2802
	Aldebaran	W.	39 46 47	2984	41 17 20	2961	42 48 22	2939	44 19 51	2919
	Sun	E.	44 0 39	3183	42 34 9	3169	41 7 23	3155	39 40 20	3142
25	α Arietis	W.	83 54 50	2735	85 30 44	2720	87 6 57	2707	88 43 28	2692
	Aldebaran	W.	52 3 39	2822	53 37 38	2805	55 12 0	2787	56 46 45	2769
	Sun	E.	32 20 59	3073	30 52 17	3060	29 23 18	3047	27 54 3	3034
29	Sun	W.	17 49 8	2694	19 25 56	2681	21 3 2	2668	22 40 25	2657
	Saturn	E.	61 24 38	2398	59 41 1	2392	57 57 15	2387	56 13 21	2382
	Antares	E.	74 19 58	2342	72 34 59	2334	70 49 49	2327	69 4 29	2320
30	Sun	W.	30 50 41	2615	32 29 16	2608	34 8 0	2602	35 46 52	2598
	Saturn	E.	47 32 24	2366	45 48 1	2366	44 3 37	2365	42 19 12	2366
	Antares	E.	60 15 30	2291	58 29 18	2287	56 43 0	2283	54 56 35	2279
	α Aquilæ	E.	111 48 24	3009	110 18 22	2988	108 47 54	2969	107 17 2	2952
31	Sun	W.	44 2 42	2579	45 42 6	2576	47 21 34	2574	49 1 5	2572
	Antares	E.	46 3 14	2264	44 16 21	2262	42 29 26	2260	40 42 28	2259
	α Aquilæ	E.	99 38 2	2891	98 5 31	2883	96 32 51	2877	95 0 3	2873

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			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	α Aquilæ	W.	107 15 7	[illegible]	108 30 57	[illegible]	109 46 34	[illegible]	111 1 56	[illegible]
	Fomalhaut	W.	83 22 10	[illegible]	84 43 36	[illegible]	86 5 2	[illegible]	87 26 29	[illegible]
	α Pegasi	W.	61 15 58	[illegible]	62 40 34	[illegible]	64 5 15	[illegible]	65 30 1	[illegible]
	Venus	E.	52 55 6	[illegible]	51 34 53	[illegible]	50 14 41	[illegible]	48 54 30	[illegible]
	Pollux	E.	58 9 35	[illegible]	56 41 19	[illegible]	55 13 6	[illegible]	53 44 55	[illegible]
	Sun	E.	93 50 43	[illegible]	92 29 10	[illegible]	91 7 37	[illegible]	89 46 5	[illegible]
20	Fomalhaut	W.	94 14 0	[illegible]	95 35 33	[illegible]	96 57 8	[illegible]	98 18 44	[illegible]
	α Pegasi	W.	72 35 18	[illegible]	74 0 39	[illegible]	75 26 7	[illegible]	76 51 41	[illegible]
	α Arietis	W.	29 13 14	[illegible]	30 40 57	[illegible]	32 8 49	[illegible]	33 36 50	[illegible]
	Venus	E.	42 13 28	[illegible]	40 53 11	[illegible]	39 32 50	[illegible]	38 12 26	[illegible]
	Pollux	E.	46 24 11	[illegible]	44 56 2	[illegible]	43 27 52	[illegible]	41 59 40	[illegible]
	Sun	E.	82 58 17	[illegible]	81 36 37	[illegible]	80 14 54	[illegible]	78 53 7	[illegible]
21	Fomalhaut	W.	105 6 57	[illegible]	106 28 37	[illegible]	107 50 18	[illegible]	109 11 59	[illegible]
	α Pegasi	W.	84 1 24	[illegible]	85 27 44	[illegible]	86 54 13	[illegible]	88 20 51	[illegible]
	α Arietis	W.	40 59 18	[illegible]	42 28 17	[illegible]	43 57 26	[illegible]	45 26 45	[illegible]
	Venus	E.	31 29 17	[illegible]	30 8 22	[illegible]	28 47 21	[illegible]	27 26 13	[illegible]
	Pollux	E.	34 35 13	[illegible]	33 9 50	[illegible]	31 41 25	[illegible]	30 12 59	[illegible]
	Sun	E.	72 2 50	[illegible]	70 40 27	[illegible]	69 17 56	[illegible]	67 55 16	[illegible]
22	Fomalhaut	W.	116 0 10	[illegible]	117 21 41	[illegible]	118 43 8	[illegible]	120 4 30	[illegible]
	α Pegasi	W.	95 36 23	[illegible]	97 3 59	[illegible]	98 31 46	[illegible]	99 59 44	[illegible]
	α Arietis	W.	52 56 16	[illegible]	54 26 47	[illegible]	55 57 32	[illegible]	57 28 30	[illegible]
	Aldebaran	W.	22 28 15	[illegible]	23 50 9	[illegible]	25 13 10	[illegible]	26 37 13	[illegible]
	Sun	E.	60 59 32	[illegible]	59 35 51	[illegible]	58 11 55	[illegible]	56 47 53	[illegible]
23	α Pegasi	W.	107 22 13	[illegible]	108 51 15	[illegible]	110 20 28	[illegible]	111 49 51	[illegible]
	α Arietis	W.	65 6 56	[illegible]	66 39 22	[illegible]	68 12 5	[illegible]	69 45 4	[illegible]
	Aldebaran	W.	33 49 38	[illegible]	35 18 7	[illegible]	36 47 9	[illegible]	38 16 43	[illegible]
	Sun	E.	49 44 4	[illegible]	48 18 36	[illegible]	46 52 52	[illegible]	45 26 53	[illegible]
24	α Arietis	W.	77 34 14	[illegible]	79 8 56	[illegible]	80 43 56	[illegible]	82 19 14	[illegible]
	Aldebaran	W.	45 51 46	[illegible]	47 24 7	[illegible]	48 56 53	[illegible]	50 30 4	[illegible]
	Sun	E.	38 13 1	[illegible]	36 45 25	[illegible]	35 17 33	[illegible]	33 49 24	[illegible]
25	α Arietis	W.	90 20 18	[illegible]	91 57 26	[illegible]	93 34 53	[illegible]	95 12 38	[illegible]
	Aldebaran	W.	58 21 53	[illegible]	59 57 23	[illegible]	61 33 16	[illegible]	63 9 30	[illegible]
	Sun	E.	26 24 32	[illegible]	24 54 45	[illegible]	23 24 44	[illegible]	21 54 28	[illegible]
29	Sun	W.	24 18 [illegible]	[illegible]	25 55 55	[illegible]	27 33 59	[illegible]	29 12 15	[illegible]
	Saturn	F.	54 29 21	[illegible]	52 45 14	[illegible]	51 1 2	[illegible]	49 16 45	[illegible]
	Antares	E.	67 18 [illegible]	[illegible]	65 33 19	[illegible]	63 47 31	[illegible]	62 1 34	[illegible]
30	Sun	W.	[illegible] 25 [illegible]	[illegible]	39 4 55	[illegible]	40 44 6	[illegible]	42 23 22	[illegible]
	Saturn	E.	40 [illegible] [illegible]	[illegible]	38 50 2[illegible]	[illegible]	37 6 11	[illegible]	35 22 0	[illegible]
	Antares	F.	[illegible]	[illegible]	[illegible] 23 2[illegible]	[illegible]	[illegible] 36 45	[illegible]	47 50 3	[illegible]
	α Aquilæ	F.	105 45 4[illegible]	[illegible]	104 14 16	[illegible]	102 42 26	[illegible]	101 10 21	[illegible]
31	Sun	W.	[illegible]	[illegible]	52 20 15	[illegible]	53 5[illegible] 52	[illegible]	55 3[illegible] 31	[illegible]
	Antares	E.	38 55 2[illegible]	[illegible]	37 8 2[illegible]	[illegible]	35 21 23	[illegible]	33 34 19	[illegible]
	α Aquilæ	E.	93 27 9	[illegible]	91 54 20	[illegible]	90 21 9	[illegible]	88 4[illegible] 7	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Wed.	1	10 43 24.64	9.067	N. 8 5 56.2	−54.63	15 53.77	64.40	0 13.44	0.787
Thur.	2	10 47 2.10	9.055	7 44 1.2	54.94	15 54.01	64.36	0 32.49	0.799
Frid.	3	10 50 39.28	9.043	7 21 58.7	55.25	15 54.25	64.32	0 51.81	0.811
Sat.	4	10 54 16.18	9.032	6 59 49.2	−55.54	15 54.50	64.28	1 11.41	0.823
SUN.	5	10 57 52.83	9.022	6 37 32.9	55.81	15 54.74	64.25	1 31.26	0.832
Mon.	6	11 1 29.25	9.013	6 15 10.3	56.07	15 54.99	64.22	1 51.34	0.841
Tues.	7	11 5 5.45	9.004	5 52 41.5	−56.32	15 55.24	64.19	2 11.63	0.850
Wed.	8	11 8 41.46	8.997	5 30 7.0	56.56	15 55.49	64.17	2 32.12	0.857
Thur.	9	11 12 17.29	8.990	5 7 27.0	56.78	15 55.74	64.15	2 52.79	0.864
Frid.	10	11 15 52.97	8.984	4 44 41.7	−56.99	15 56.00	64.13	3 13.60	0.870
Sat.	11	11 19 28.52	8.979	4 21 51.6	57.18	15 56.25	64.11	3 34.55	0.875
SUN.	12	11 23 3.97	8.975	3 58 56.9	57.36	15 56.50	64.10	3 55.60	0.879
Mon.	13	11 26 39.34	8.972	3 35 57.9	−57.54	15 56.76	64.09	4 16.73	0.882
Tues.	14	11 30 14.64	8.970	3 12 54.9	57.70	15 57.01	64.08	4 37.92	0.884
Wed.	15	11 33 49.91	8.969	2 49 48.3	57.85	15 57.27	64.07	4 59.14	0.885
Thur.	16	11 37 25.16	8.969	2 26 38.3	−57.98	15 57.53	64.07	5 20.39	0.885
Frid.	17	11 41 0.42	8.970	2 3 25.2	58.10	15 57.78	64.07	5 41.62	0.884
Sat.	18	11 44 35.72	8.972	1 40 9.5	58.21	15 58.04	64.07	6 2.82	0.882
SUN.	19	11 48 11.06	8.974	1 16 51.4	−58.30	15 58.30	64.08	6 23.98	0.880
Mon.	20	11 51 46.47	8.977	0 53 31.2	58.38	15 58.56	64.09	6 45.06	0.876
Tues.	21	11 55 21.98	8.982	0 30 9.3	58.44	15 58.82	64.10	7 6.05	0.872
Wed.	22	11 58 57.59	8.987	N. 0 6 46.1	−58.49	15 59.09	64.11	7 26.93	0.867
Thur.	23	12 2 33.34	8.992	S. 0 16 38.0	58.52	15 59.35	64.13	7 47.69	0.862
Frid.	24	12 6 9.23	8.999	0 40 2.8	58.53	15 59.62	64.15	8 8.29	0.855
Sat.	25	12 9 45.28	9.006	1 3 27.8	−58.54	15 59.89	64.18	8 28.73	0.848
SUN.	26	12 13 21.52	9.014	1 26 52.6	58.53	16 0.17	64.21	8 48.99	0.840
Mon.	27	12 16 57.96	9.023	1 50 17.0	58.50	16 0.44	64.24	9 9.05	0.831
Tues.	28	12 20 34.61	9.032	2 13 40.4	−58.45	16 0.72	64.27	9 28.90	0.822
Wed.	29	12 24 11.49	9.042	2 37 2.6	58.39	16 1.00	64.31	9 48.52	0.812
Thur.	30	12 27 48.63	9.054	3 0 23.1	58.31	16 1.28	64.35	10 7.88	0.801
Frid.	31	12 31 26.03	9.066	S. 3 23 41.6	−58.22	16 1.56	64.39	10 26.98	0.790

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that north declinations are decreasing; south declinations increasing.

AT GREENWICH MEAN NOON.

Day of the Week	Day of the Month	THE SUN'S Apparent Right Ascension	Diff. for 1 Hour	Apparent Declination	Diff. for 1 Hour	Equation of Time, to be Added to Mean Time	Diff. for 1 Hour	Sidereal Time, or Right Ascension of Mean Sun
		h m s	s	° ′ ″	″	m s	s	h m s
Wed	1	10 43 24.67	9.069	N. 8 5 56.0	−54.65	0 13.45	0.787	10 43 38.12
Thur.	2	10 47 2.18	9.057	7 44 0.6	54.97	0 32.50	0.799	10 47 34.68
Frid	3	10 50 39.41	9.045	7 21 57.8	55.26	0 51.83	0.811	10 51 31.23
Sat.	4	10 54 16.36	9.034	6 59 48.0	−55.54	1 11.43	0.822	10 55 27.79
SUN.	5	10 57 53.06	9.024	6 37 31.4	55.82	1 31.28	0.832	10 59 24.34
Mon.	6	11 1 29.53	9.015	6 15 8.5	56.08	1 51.36	0.841	11 3 20.89
Tues.	7	11 5 5.78	9.006	5 52 39.4	−56.33	2 11.67	0.850	11 7 17.45
Wed.	8	11 8 41.84	8.999	5 30 4.5	56.57	2 32.16	0.858	11 11 14.00
Thur.	9	11 12 17.72	8.992	5 7 24.2	56.79	2 52.83	0.864	11 15 10.55
Frid.	10	11 15 53.46	8.986	4 44 38.6	−57.00	3 13.65	0.870	11 19 7.11
Sat.	11	11 19 29.06	8.981	4 21 48.2	57.20	3 34.60	0.875	11 23 3.66
SUN.	12	11 23 4.56	8.977	3 58 53.1	57.39	3 55.66	0.879	11 27 0.22
Mon.	13	11 26 39.98	8.974	3 35 53.8	−57.56	4 16.79	0.882	11 30 56.77
Tues.	14	11 30 15.33	8.972	3 12 50.4	57.72	4 37.99	0.884	11 34 53.32
Wed.	15	11 33 50.65	8.971	2 49 43.4	57.86	4 59.22	0.885	11 38 49.87
Thur	16	11 37 25.96	8.971	2 26 33.1	−57.99	5 20.47	0.885	11 42 46.43
Frid.	17	11 41 1.27	8.972	2 3 19.7	58.11	5 41.71	0.884	11 46 42.98
Sat.	18	11 44 36.62	8.974	1 40 3.6	58.22	6 2.92	0.882	11 50 39.54
SUN.	19	11 48 12.01	8.976	1 16 45.1	−58.31	6 24.07	0.880	11 54 36.09
Mon.	20	11 51 47.48	8.979	0 53 24.6	58.39	6 45.16	0.877	11 58 32.64
Tues.	21	11 55 23.04	8.984	0 30 2.4	58.45	7 6.16	0.873	12 2 29.19
Wed	22	11 58 58.71	8.989	N. 0 6 38.8	−58.50	7 27.04	0.868	12 6 25.75
Thur.	23	12 2 34.5[illegible]	8.995	S. 0 16 45.7	58.53	7 47.[illegible]	0.862	12 10 22.30
Frid.	24	12 6 1[illegible] 45	9.[illegible]	0 4[illegible] 1 [illegible]	58.54	8 8.41	0.855	12 14 18.85
Sat.	25	12 9 4[illegible]	9.[illegible]	1 3 36.1	58.55	8 28.85	0.848	12 18 15.41
SUN.	26	12 13 [illegible]	9.[illegible]	1 27 1[illegible]	58.54	8 49.12	0.840	12 22 11.96
Mon.	27	12 16 5[illegible]	[illegible]	1 5[illegible] 25.[illegible]	58.51	9 9.1[illegible]	0.832	12 26 8.51
Tues.	28	12 2[illegible]	[illegible]	2 13 4[illegible]	58.46	9 2[illegible]	0.823	12 30 5.07
Wed	29	12 24 1[illegible]	[illegible]	2 37 12.2	58.40	9 4[illegible]	0.812	12 34 1.62
Thur	30	12 27 5[illegible]	9.[illegible]	3 [illegible] 13	58.32	10 [illegible]	0.801	12 37 58.17
Frid	31	12 31 2[illegible]	9.[illegible]	S. 3 23 51.[illegible]	−58.23	10 27.12	0.790	12 41 54.73

NOTE. The [illegible] time of [illegible] mean noon [illegible] be assumed the same as that for apparent noon. The sign [illegible] that north declinations are decreasing [illegible] increasing.

Diff. for 1 Hour, + 9^s.8565 (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	244	159 16 31.4	15 42.9	145.35	− 0.57	0.0037294	−44.9	13 14 11.41
2	245	160 14 40.4	13 51.8	145.41	0.55	0.0036209	45.5	13 10 15.50
3	246	161 12 50.8	12 2.1	145.47	0.49	0.0035110	46.0	13 6 19.60
4	247	162 11 2.7	10 13.8	145.53	− 0.41	0.0034000	−46.4	13 2 23.69
5	248	163 9 16.1	8 27.1	145.59	0.30	0.0032881	46.8	12 58 27.78
6	249	164 7 31.0	6 41.9	145.65	0.17	0.0031754	47.1	12 54 31.87
7	250	165 5 47.3	4 58.1	145.71	− 0.04	0.0030619	−47.4	12 50 35.96
8	251	166 4 5.3	3 16.0	145.78	+ 0.11	0.0029479	47.6	12 46 40.06
9	252	167 2 24.8	1 35.4	145.85	0.24	0.0028333	47.8	12 42 44.15
10	253	167 60 46.1	59 56.6	145.92	+ 0.36	0.0027185	−47.9	12 38 48.24
11	254	168 59 9.2	58 19.6	146.00	0.46	0.0026033	48.0	12 34 52.33
12	255	169 57 34.1	56 44.4	146.08	0.54	0.0024880	48.1	12 30 56.42
13	256	170 56 0.9	55 11.1	146.16	+ 0.59	0.0023725	−48.2	12 27 0.52
14	257	171 54 29.8	53 39.8	146.24	0.63	0.0022568	48.3	12 23 4.61
15	258	172 53 0.7	52 10.6	146.33	0.62	0.0021409	48.4	12 19 8.70
16	259	173 51 33.7	50 43.5	146.42	+ 0.59	0.0020247	−48.5	12 15 12.80
17	260	174 50 8.9	49 18.6	146.51	0.52	0.0019082	48.7	12 11 16.89
18	261	175 48 46.3	47 55.9	146.60	0.43	0.0017912	48.9	12 7 20.98
19	262	176 47 25.9	46 35.4	146.70	+ 0.33	0.0016737	−49.1	12 3 25.08
20	263	177 46 7.8	45 17.2	146.79	0.20	0.0015555	49.4	11 59 29.17
21	264	178 44 51.9	44 1.2	146.88	+ 0.07	0.0014366	49.7	11 55 33.26
22	265	179 43 38.2	42 47.4	146.97	− 0.06	0.0013169	−50.0	11 51 37.35
23	266	180 42 26.8	41 35.9	147.06	0.17	0.0011964	50.4	11 47 41.44
24	267	181 41 17.4	40 26.4	147.15	0.29	0.0010749	50.8	11 43 45.54
25	268	182 40 10.2	39 19.1	147.24	− 0.38	0.0009526	−51.2	11 39 49.63
26	269	183 39 5.1	38 13.9	147.33	0.45	0.0008292	51.6	11 35 53.72
27	270	184 38 2.0	37 10.7	147.41	0.48	0.0007048	52.0	11 31 57.82
28	271	185 37 0.7	36 9.3	147.49	− 0.48	0.0005798	−52.3	11 28 1.91
29	272	186 36 1.5	35 10.0	147.57	0.46	0.0004538	52.6	11 24 6.00
30	273	187 35 4.1	34 12.5	147.65	0.41	0.0003273	52.8	11 20 10.09
31	274	188 34 8.4	33 16.7	147.72	− 0.33	0.0002002	−53.1	11 16 14.18

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0ᵈ.0.

Diff. for 1 Hour, −9ˢ.8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Upper Transit. Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	16 13.5	16 13.6	59 26.2	+0.13	59 26.8	−0.02	3 33.5	2.90	4.4
2	16 13.3	16 12.6	59 25.7	−0.15	59 23.1	0.28	4 30.5	2.45	5.4
3	16 11.6	16 10.1	59 19.1	0.38	59 13.9	0.48	5 30.6	2.55	6.4
4	16 8.4	16 6.4	59 7.6	−0.57	59 0.2	−0.66	6 32.3	2.57	7.4
5	16 4.1	16 1.6	58 51.8	0.74	58 42.5	0.81	7 33.1	2.49	8.4
6	15 58.8	15 55.8	58 32.3	0.88	58 21.3	0.95	8 31.2	2.34	9.4
7	15 52.6	15 49.1	58 9.4	−1.03	57 56.6	−1.10	9 25.3	2.17	10.4
8	15 45.4	15 41.5	57 43.0	1.16	57 28.7	1.22	10 15.5	2.01	11.4
9	15 37.4	15 33.2	57 13.7	1.27	56 58.2	1.31	11 2.3	1.89	12.4
10	15 28.8	15 24.4	56 42.2	−1.35	56 25.9	−1.36	11 46.8	1.82	13.4
11	15 20.0	15 15.5	56 9.6	1.35	55 53.4	1.33	12 30.0	1.79	14.4
12	15 11.2	15 7.1	55 37.6	1.29	55 22.4	1.23	13 12.8	1.79	15.4
13	15 3.2	14 59.6	55 8.0	−1.15	54 54.8	−1.05	13 56.3	1.83	16.4
14	14 56.3	14 53.5	54 42.9	0.93	54 32.6	0.78	14 41.1	1.90	17.4
15	14 51.2	14 49.4	54 24.1	0.63	54 17.5	0.46	15 27.7	1.98	18.4
16	14 48.2	14 47.7	54 13.1	−0.27	54 11.0	0.07	16 16.2	2.06	19.4
17	14 47.8	14 48.5	54 11.4	+0.13	54 14.2	+0.35	17 6.2	2.11	20.4
18	14 50.0	14 52.2	54 19.7	0.56	54 27.7	0.78	17 57.3	2.13	21.4
19	14 55.1	14 58.7	54 38.3	+0.99	54 51.4	+1.19	18 48.4	2.12	22.4
20	15 2.9	15 7.7	55 6.9	1.39	55 24.7	1.57	19 38.9	2.08	23.4
21	15 13.1	15 19.0	55 44.5	1.73	56 6.1	1.86	20 28.2	2.03	24.4
22	15 25.3	15 31.9	56 29.2	+1.97	56 53.3	+2.04	21 16.3	1.99	25.4
23	15 38.6	15 45.4	57 18.1	2.08	57 43.1	2.07	22 3.8	1.97	26.4
24	15 52.1	15 58.6	58 7.7	2.02	58 31.5	1.92	22 51.4	2.00	27.4
25	16 4.7	16 10.2	58 53.8	+1.79	59 14.2	+1.60	23 40.0	2.06	28.4
26	16 15.1	16 19.2	59 32.2	1.48	59 47.3	1.13	6		29.4
27	16 22.5	16 24.7	59 59.3	0.86	60 8.0	0.58	0 30.8	2.18	0.9
28	16 26.3	16 26.7	60 13.2	+0.23	60 14.9	+0.01	1 24.7	2.32	1.9
29	16 26.3	16 25.1	60 13.4	−0.25	60 8.8	−0.50	2 22.3	2.47	2.9
30	16 23.0	16 21.3	60 1.3	0.73	59 51.4	0.91	3 23.2	2.59	3.9
31	16 17.1	16 13.4	59 39.5	−1.06	59 25.9	−1.18	4 25.8	2.61	4.9

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	14 9 13.76	2.3637	S.18 34 1.0	12.010
1	14 11 35.74	2.3692	18 45 58.3	11.899
2	14 13 58.06	2.3748	18 57 48.9	11.787
3	14 16 20.71	2.3803	19 9 32.7	11.672
4	14 18 43.70	2.3859	19 21 9.5	11.556
5	14 21 7.02	2.3915	19 32 39.4	11.438
6	14 23 30.68	2.3971	19 44 2.1	11.318
7	14 25 54.67	2.4027	19 55 17.6	11.198
8	14 28 19.00	2.4083	20 6 25.8	11.076
9	14 30 43.66	2.4138	20 17 26.7	10.952
10	14 33 8.65	2.4193	20 28 20.0	10.826
11	14 35 33.98	2.4248	20 39 5.8	10.699
12	14 37 59.63	2.4303	20 49 43.9	10.571
13	14 40 25.62	2.4359	21 0 14.3	10.441
14	14 42 51.94	2.4414	21 10 36.8	10.308
15	14 45 18.59	2.4469	21 20 51.3	10.176
16	14 47 45.57	2.4523	21 30 57.9	10.042
17	14 50 12.87	2.4577	21 40 56.3	9.905
18	14 52 40.49	2.4631	21 50 46.5	9.767
19	14 55 8.44	2.4685	22 0 28.4	9.628
20	14 57 36.71	2.4738	22 10 1.9	9.488
21	15 0 5.29	2.4790	22 19 27.0	9.347
22	15 2 34.19	2.4842	22 28 43.5	9.203
23	15 5 3.40	2.4894	S.22 37 51.4	9.059

THURSDAY 2.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	15 7 32.92	2.4945	S.22 46 50.6	8.913
1	15 10 2.74	2.4996	22 55 41.0	8.766
2	15 12 32.87	2.5047	23 4 22.5	8.617
3	15 15 3.30	2.5096	23 12 55.0	8.467
4	15 17 34.02	2.5145	23 21 18.5	8.315
5	15 20 5.04	2.5193	23 29 32.8	8.163
6	15 22 36.34	2.5241	23 37 38.0	8.009
7	15 25 7.93	2.5288	23 45 33.9	7.854
8	15 27 39.80	2.5334	23 53 20.5	7.697
9	15 30 11.94	2.5380	24 0 57.6	7.539
10	15 32 44.36	2.5425	24 8 25.2	7.381
11	15 35 17.04	2.5469	24 15 43.3	7.222
12	15 37 49.99	2.5512	24 22 51.8	7.061
13	15 40 23.19	2.5554	24 29 50.6	6.898
14	15 42 56.64	2.5596	24 36 39.6	6.735
15	15 45 30.34	2.5637	24 43 18.8	6.571
16	15 48 4.28	2.5676	24 49 48.1	6.406
17	15 50 38.45	2.5714	24 56 7.5	6.239
18	15 53 12.85	2.5752	25 2 16.8	6.072
19	15 55 47.48	2.5789	25 8 16.1	5.904
20	15 58 22.32	2.5824	25 14 5.3	5.735
21	16 0 57.37	2.5858	25 19 44.3	5.564
22	16 3 32.62	2.5892	25 25 13.0	5.393
23	16 6 8.07	2.5924	25 30 31.5	5.222
24	16 8 43.71	2.5955	S.25 35 39.7	5.050

FRIDAY 3.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	16 8 43.71	2.5955	S.25 35 39.7	5.050
1	16 11 19.53	2.5985	25 40 37.5	4.876
2	16 13 55.53	2.6014	25 45 24.8	4.702
3	16 16 31.70	2.6042	25 50 1.7	4.528
4	16 19 8.03	2.6068	25 54 28.1	4.352
5	16 21 44.52	2.6093	25 58 43.9	4.175
6	16 24 21.15	2.6117	26 2 49.1	3.998
7	16 26 57.92	2.6139	26 6 43.7	3.822
8	16 29 34.82	2.6160	26 10 27.7	3.644
9	16 32 11.84	2.6180	26 14 1.0	3.465
10	16 34 48.98	2.6198	26 17 23.5	3.286
11	16 37 26.22	2.6215	26 20 35.3	3.107
12	16 40 3.56	2.6231	26 23 36.3	2.927
13	16 42 40.99	2.6246	26 26 26.5	2.746
14	16 45 18.51	2.6259	26 29 5.8	2.565
15	16 47 56.10	2.6270	26 31 34.3	2.384
16	16 50 33.75	2.6280	26 33 51.9	2.203
17	16 53 11.46	2.6288	26 35 58.7	2.022
18	16 55 49.21	2.6296	26 37 54.6	1.840
19	16 58 27.01	2.6303	26 39 39.5	1.658
20	17 1 4.84	2.6307	26 41 13.5	1.476
21	17 3 42.69	2.6309	26 42 36.6	1.294
22	17 6 20.55	2.6311	26 43 48.8	1.112
23	17 8 58.42	2.6311	S.26 44 50.0	0.928

SATURDAY 4.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	17 11 36.28	2.6309	S.26 45 40.2	0.746
1	17 14 14.13	2.6306	26 46 19.5	0.564
2	17 16 51.95	2.6302	26 46 47.9	0.382
3	17 19 29.75	2.6296	26 47 5.4	0.200
4	17 22 7.50	2.6288	26 47 11.9	− 0.018
5	17 24 45.20	2.6279	26 47 7.5	+ 0.164
6	17 27 22.85	2.6269	26 46 52.2	0.346
7	17 30 0.43	2.6257	26 46 26.0	0.527
8	17 32 37.94	2.6244	26 45 48.9	0.708
9	17 35 15.36	2.6229	26 45 1.0	0.888
10	17 37 52.69	2.6213	26 44 2.3	1.069
11	17 40 29.92	2.6195	26 42 52.7	1.250
12	17 43 7.03	2.6176	26 41 32.3	1.429
13	17 45 44.03	2.6156	26 40 1.2	1.608
14	17 48 20.90	2.6133	26 38 19.3	1.787
15	17 50 57.63	2.6110	26 36 26.7	1.965
16	17 53 34.22	2.6086	26 34 23.5	2.143
17	17 56 10.66	2.6059	26 32 9.6	2.320
18	17 58 46.93	2.6032	26 29 45.1	2.496
19	18 1 23.04	2.6004	26 27 10.1	2.672
20	18 3 58.98	2.5974	26 24 24.5	2.848
21	18 6 34.73	2.5943	26 21 28.4	3.022
22	18 9 10.29	2.5910	26 18 21.9	3.195
23	18 11 45.65	2.5876	26 15 5.0	3.368
24	18 14 20.80	2.5841	S.26 11 37.7	3.541

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 5.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	18 14 20.80	[illegible]	S.26 11 37.7	[illegible]
1	18 16 55.74	[illegible]	26 8 0.1	[illegible]
2	18 19 30.46	[illegible]	26 4 12.3	[illegible]
3	18 22 4.95	[illegible]	26 0 14.3	[illegible]
4	18 24 39.20	[illegible]	25 56 6.1	[illegible]
5	18 27 13.21	[illegible]	25 51 47.9	[illegible]
6	18 29 46.97	[illegible]	25 47 19.6	[illegible]
7	18 32 20.45	[illegible]	25 42 41.3	[illegible]
8	18 34 53.72	[illegible]	25 37 53.1	[illegible]
9	18 37 26.70	[illegible]	25 32 55.1	[illegible]
10	18 39 59.40	[illegible]	25 27 47.3	[illegible]
11	18 42 31.82	[illegible]	25 22 29.8	[illegible]
12	18 45 3.95	[illegible]	25 17 2.6	[illegible]
13	18 47 35.79	[illegible]	25 11 25.8	[illegible]
14	18 50 7.34	[illegible]	25 5 39.5	[illegible]
15	18 52 38.55	[illegible]	24 59 43.7	[illegible]
16	18 55 9.51	[illegible]	24 53 38.6	[illegible]
17	18 57 40.13	[illegible]	24 47 24.2	[illegible]
18	19 0 10.43	[illegible]	24 41 0.5	[illegible]
19	19 2 40.41	[illegible]	24 34 27.7	[illegible]
20	19 5 10.07	[illegible]	24 27 45.8	[illegible]
21	19 7 39.39	[illegible]	24 20 54.9	[illegible]
22	19 10 8.39	[illegible]	24 13 55.1	[illegible]
23	19 12 37.03	[illegible]	S.24 6 46.4	[illegible]

MONDAY 6.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	19 15 5.33	[illegible]	S.23 59 28.9	[illegible]
1	19 17 33.[illegible]	[illegible]	23 52 2.7	[illegible]
2	19 20 0.[illegible]	[illegible]	23 44 28.0	[illegible]
3	19 22 [illegible]	[illegible]	23 36 44.7	[illegible]
4	19 24 55.04	[illegible]	23 28 52.9	[illegible]
5	19 27 21.59	[illegible]	23 20 52.8	[illegible]
6	19 29 47.75	[illegible]	23 12 44.4	[illegible]
7	19 32 13.56	[illegible]	23 4 27.9	[illegible]
8	19 34 39.00	[illegible]	22 56 3.2	[illegible]
9	19 37 4.0[illegible]	[illegible]	22 47 [illegible]	[illegible]
10	19 39 [illegible]	[illegible]	22 38 [illegible]	[illegible]
11	19 41 53.10	[illegible]	22 30 1.5	[illegible]
12	19 44 [illegible]	[illegible]	22 21 5.3	[illegible]
13	19 46 [illegible]	[illegible]	22 12 1.4	[illegible]
14	19 49 [illegible]	[illegible]	22 2 [illegible]	[illegible]
15	19 51 [illegible]	[illegible]	21 51 [illegible]	[illegible]
16	19 53 49.[illegible]	[illegible]	21 44 [illegible]	[illegible]
17	19 56 11.11	[illegible]	21 34 [illegible]	[illegible]
18	19 58 32.[illegible]	[illegible]	21 [illegible]	[illegible]
19	20 0 [illegible]	[illegible]	21 15 [illegible]	[illegible]
20	20 3 14.[illegible]	[illegible]	21 5 [illegible]	[illegible]
21	20 5 [illegible]	[illegible]	20 55 [illegible]	[illegible]
22	20 7 55.[illegible]	[illegible]	20 44 [illegible]	[illegible]
23	20 10 15.35	[illegible]	20 34 41.3	[illegible]
24	20 12 34.[illegible]	[illegible]	S.20 24 [illegible]	[illegible]

TUESDAY 7.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	20 12 34.70	[illegible]	S.20 24 19.1	[illegible]
1	20 14 53.67	[illegible]	20 13 50.4	[illegible]
2	20 17 12.26	[illegible]	20 3 15.2	[illegible]
3	20 19 30.46	[illegible]	19 52 33.6	[illegible]
4	20 21 48.28	[illegible]	19 41 45.7	[illegible]
5	20 24 5.71	[illegible]	19 30 51.6	[illegible]
6	20 26 22.76	[illegible]	19 19 51.4	[illegible]
7	20 28 39.43	[illegible]	19 8 45.2	[illegible]
8	20 30 55.72	[illegible]	18 57 33.1	[illegible]
9	20 33 11.63	[illegible]	18 46 15.1	[illegible]
10	20 35 27.16	[illegible]	18 34 51.4	[illegible]
11	20 37 42.32	[illegible]	18 23 22.0	[illegible]
12	20 39 57.10	[illegible]	18 11 47.1	[illegible]
13	20 42 11.51	[illegible]	18 0 6.7	[illegible]
14	20 44 25.54	[illegible]	17 48 21.0	[illegible]
15	20 46 39.20	[illegible]	17 36 30.0	[illegible]
16	20 48 52.49	[illegible]	17 24 33.9	[illegible]
17	20 51 5.42	[illegible]	17 12 32.6	[illegible]
18	20 53 17.98	[illegible]	17 0 26.3	[illegible]
19	20 55 30.18	[illegible]	16 48 15.1	[illegible]
20	20 57 42.02	[illegible]	16 35 59.1	[illegible]
21	20 59 53.50	[illegible]	16 23 38.4	[illegible]
22	21 2 4.63	[illegible]	16 11 13.0	[illegible]
23	21 4 15.40	[illegible]	S.15 58 43.1	[illegible]

WEDNESDAY 8.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	21 6 25.82	[illegible]	S.15 46 8.7	[illegible]
1	21 8 35.89	[illegible]	15 33 29.9	[illegible]
2	21 10 45.62	[illegible]	15 20 46.9	[illegible]
3	21 12 55.00	[illegible]	15 7 59.7	[illegible]
4	21 15 4.05	[illegible]	14 55 8.4	[illegible]
5	21 17 12.70	[illegible]	14 42 13.1	[illegible]
6	21 19 21.14	[illegible]	14 29 13.8	[illegible]
7	21 21 29.18	[illegible]	14 16 10.7	[illegible]
8	21 23 3[illegible].90	[illegible]	14 3 3.8	13.143
9	21 25 44.29	[illegible]	13 49 53.3	[illegible]
10	21 27 51.36	[illegible]	13 36 39.2	[illegible]
11	21 29 58.11	[illegible]	13 23 21.6	[illegible]
12	21 32 4.55	[illegible]	13 10 0.6	[illegible]
13	21 34 10.6[illegible]	[illegible]	12 56 36.3	13.433
14	21 36 16.[illegible]	[illegible]	12 43 8.7	[illegible]
15	21 38 22.01	[illegible]	12 29 38.0	13.510
16	21 40 27.22	[illegible]	12 16 4.2	[illegible]
17	21 42 32.14	[illegible]	12 2 27.4	[illegible]
18	21 44 36.[illegible]	[illegible]	11 48 47.7	[illegible]
19	21 46 41.[illegible]	[illegible]	11 35 5.2	[illegible]
20	21 48 45.14	[illegible]	11 21 20.0	[illegible]
21	21 50 4[illegible]	[illegible]	11 7 32.1	[illegible]
22	21 52 52.3[illegible]	[illegible]	10 53 41.6	[illegible]
23	21 54 55.[illegible]	[illegible]	10 39 48.7	[illegible]
24	21 56 [illegible].51	[illegible]	S.10 25 51.4	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
THURSDAY 9.				
	h m s	s	° ′ ″	″
0	21 56 58.51	2.0467	S. 10 25 53.4	13.942
1	21 59 1.18	2.0423	10 11 55.7	13.980
2	22 1 3.58	2.0378	9 57 55.8	14.017
3	22 3 5.72	2.0335	9 43 53.7	14.053
4	22 5 7.60	2.0293	9 29 49.5	14.087
5	22 7 9.23	2.0252	9 15 43.3	14.120
6	22 9 10.62	2.0211	9 1 35.1	14.152
7	22 11 11.76	2.0169	8 47 25.1	14.182
8	22 13 12.65	2.0129	8 33 13.3	14.211
9	22 15 13.31	2.0091	8 18 59.8	14.239
10	22 17 13.74	2.0052	8 4 44.6	14.266
11	22 19 13.94	2.0014	7 50 27.9	14.291
12	22 21 13.91	1.9977	7 36 9.7	14.315
13	22 23 13.66	1.9941	7 21 50.1	14.338
14	22 25 13.20	1.9905	7 7 29.2	14.359
15	22 27 12.52	1.9869	6 53 7.0	14.379
16	22 29 11.63	1.9835	6 38 43.7	14.398
17	22 31 10.54	1.9802	6 24 19.2	14.417
18	22 33 9.25	1.9768	6 9 53.7	14.433
19	22 35 7.76	1.9736	5 55 27.2	14.449
20	22 37 6.08	1.9704	5 40 59.8	14.463
21	22 39 4.21	1.9673	5 26 31.6	14.477
22	22 41 2.15	1.9643	5 12 2.6	14.488
23	22 42 59.92	1.9613	S. 4 57 33.0	14.499
FRIDAY 10.				
0	22 44 57.51	1.9584	S. 4 43 2.7	14.509
1	22 46 54.93	1.9556	4 28 31.9	14.518
2	22 48 52.18	1.9528	4 14 0.6	14.525
3	22 50 49.27	1.9501	3 59 28.9	14.531
4	22 52 46.19	1.9474	3 44 56.9	14.536
5	22 54 42.96	1.9449	3 30 24.6	14.540
6	22 56 39.58	1.9424	3 15 52.1	14.543
7	22 58 36.05	1.9400	3 1 19.4	14.545
8	23 0 32.38	1.9377	2 46 46.7	14.545
9	23 2 28.57	1.9354	2 32 14.0	14.545
10	23 4 24.63	1.9332	2 17 41.3	14.544
11	23 6 20.55	1.9310	2 3 8.7	14.542
12	23 8 16.35	1.9289	1 48 36.3	14.538
13	23 10 12.02	1.9269	1 34 4.2	14.533
14	23 12 7.58	1.9250	1 19 32.4	14.527
15	23 14 3.02	1.9230	1 5 1.0	14.520
16	23 15 58.34	1.9212	0 50 30.0	14.512
17	23 17 53.56	1.9195	0 35 59.6	14.503
18	23 19 48.68	1.9178	0 21 29.7	14.493
19	23 21 43.70	1.9162	S. 0 7 0.5	14.482
20	23 23 38.62	1.9147	N. 0 7 28.1	14.470
21	23 25 33.46	1.9132	0 21 55.9	14.457
22	23 27 28.21	1.9117	0 36 22.9	14.443
23	23 29 22.87	1.9103	0 50 49.0	14.428
24	23 31 17.45	1.9091	N. 1 5 14.2	14.412

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
SATURDAY 11				
	h m s	s	° ′ ″	″
0	23 31 17.45	1.9091	N. 1 5 14.2	14.412
1	23 33 11.96	1.9079	1 19 38.4	14.394
2	23 35 6.40	1.9068	1 34 1.5	14.376
3	23 37 0.77	1.9057	1 48 23.5	14.357
4	23 38 55.08	1.9047	2 2 44.3	14.337
5	23 40 49.33	1.9037	2 17 3.9	14.316
6	23 42 43.52	1.9028	2 31 22.2	14.293
7	23 44 37.66	1.9020	2 45 39.1	14.270
8	23 46 31.76	1.9012	2 59 54.6	14.247
9	23 48 25.81	1.9004	3 14 8.7	14.222
10	23 50 19.81	1.8998	3 28 21.2	14.196
11	23 52 13.78	1.8992	3 42 32.2	14.169
12	23 54 7.72	1.8987	3 56 41.5	14.142
13	23 56 1.63	1.8982	4 10 49.2	14.113
14	23 57 55.51	1.8978	4 24 55.1	14.083
15	23 59 49.37	1.8976	4 38 59.2	14.052
16	0 1 43.22	1.8973	4 53 1.4	14.021
17	0 3 37.05	1.8971	5 7 1.7	13.989
18	0 5 30.87	1.8969	5 21 0.1	13.957
19	0 7 24.68	1.8968	5 34 56.5	13.923
20	0 9 18.49	1.8968	5 48 50.8	13.887
21	0 11 12.30	1.8968	6 2 42.9	13.851
22	0 13 6.11	1.8969	6 16 32.9	13.814
23	0 14 59.93	1.8972	N. 6 30 20.6	13.776
SUNDAY 12.				
0	0 16 53.77	1.8974	N. 6 44 6.0	13.738
1	0 18 47.62	1.8976	6 57 49.1	13.698
2	0 20 41.48	1.8979	7 11 29.8	13.658
3	0 22 35.37	1.8983	7 25 8.0	13.617
4	0 24 29.28	1.8988	7 38 43.8	13.575
5	0 26 23.22	1.8993	7 52 17.0	13.532
6	0 28 17.19	1.8998	8 5 47.6	13.488
7	0 30 11.19	1.9004	8 19 15.6	13.444
8	0 32 5.24	1.9012	8 32 40.9	13.398
9	0 33 59.33	1.9018	8 46 3.4	13.352
10	0 35 53.46	1.9026	8 59 23.1	13.304
11	0 37 47.64	1.9033	9 12 39.9	13.257
12	0 39 41.86	1.9042	9 25 53.9	13.208
13	0 41 36.14	1.9052	9 39 4.9	13.158
14	0 43 30.49	1.9062	9 52 12.9	13.108
15	0 45 24.89	1.9073	10 5 17.8	13.056
16	0 47 19.36	1.9084	10 18 19.6	13.004
17	0 49 13.90	1.9095	10 31 18.3	12.952
18	0 51 8.50	1.9107	10 44 13.8	12.898
19	0 53 3.18	1.9120	10 57 6.1	12.843
20	0 54 57.94	1.9133	11 9 55.0	12.788
21	0 56 52.77	1.9146	11 22 40.6	12.732
22	0 58 47.69	1.9160	11 35 22.8	12.674
23	1 0 42.69	1.9174	11 48 1.5	12.617
24	1 2 37.78	1.9189	N. 12 0 36.8	12.558

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 13.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	1 2 37.78	[illegible]	N.12 0 36.8	[illegible]
1	1 4 32.96	[illegible]	12 13 6.5	[illegible]
2	1 6 28.24	[illegible]	12 25 36.6	[illegible]
3	1 8 23.61	[illegible]	12 38 1.1	[illegible]
4	1 10 19.08	[illegible]	12 50 21.9	[illegible]
5	1 12 14.66	[illegible]	13 2 39.0	[illegible]
6	1 14 10.34	[illegible]	13 14 52.3	[illegible]
7	1 16 6.12	[illegible]	13 27 1.8	[illegible]
8	1 18 2.02	[illegible]	13 39 7.5	[illegible]
9	1 19 58.03	[illegible]	13 51 9.2	[illegible]
10	1 21 54.16	[illegible]	14 3 7.0	[illegible]
11	1 23 50.41	[illegible]	14 15 0.8	[illegible]
12	1 25 46.77	[illegible]	14 26 50.4	[illegible]
13	1 27 43.26	[illegible]	14 38 36.0	[illegible]
14	1 29 39.87	[illegible]	14 50 17.5	[illegible]
15	1 31 36.61	[illegible]	15 1 54.8	[illegible]
16	1 33 33.48	[illegible]	15 13 27.9	[illegible]
17	1 35 30.48	[illegible]	15 24 56.7	[illegible]
18	1 37 27.62	[illegible]	15 36 21.2	[illegible]
19	1 39 24.89	[illegible]	15 47 41.3	[illegible]
20	1 41 22.30	[illegible]	15 58 57.0	[illegible]
21	1 43 19.86	[illegible]	16 10 8.2	[illegible]
22	1 45 17.56	[illegible]	16 21 15.0	[illegible]
23	1 47 15.40	[illegible]	N 16 32 17.2	[illegible]

TUESDAY 14.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	1 49 13.39	[illegible]	N 16 43 14.9	[illegible]
1	1 51 11.53	[illegible]	16 54 7.9	[illegible]
2	1 53 9.82	[illegible]	17 4 56.2	[illegible]
3	1 55 8.26	[illegible]	17 15 39.8	[illegible]
4	1 57 6.86	[illegible]	17 26 18.6	[illegible]
5	1 59 5.61	[illegible]	17 36 52.7	[illegible]
6	2 1 4.52	[illegible]	17 47 21.9	[illegible]
7	2 3 3.59	[illegible]	17 57 46.2	[illegible]
8	2 5 2.82	[illegible]	18 8 5.5	[illegible]
9	2 7 2.22	[illegible]	18 18 19.9	[illegible]
10	2 9 1.75	[illegible]	18 28 29.3	[illegible]
11	2 11 1.50	[illegible]	18 38 33.6	[illegible]
12	2 13 1.40	[illegible]	18 48 32.9	[illegible]
13	2 15 1.46	[illegible]	18 58 27.0	[illegible]
14	2 17 1.[illegible]	[illegible]	19 8 15.9	[illegible]
15	2 19 2.[illegible]	[illegible]	19 17 59.5	[illegible]
16	2 21 2.[illegible]	[illegible]	19 27 37.9	[illegible]
17	2 23 3.42	[illegible]	19 37 11.0	[illegible]
18	2 25 4.34	[illegible]	19 46 38.7	[illegible]
19	2 27 5.44	[illegible]	19 56 1.0	[illegible]
20	2 29 6.72	[illegible]	20 5 17.9	[illegible]
21	2 31 8.17	[illegible]	20 14 29.3	[illegible]
22	2 33 9.[illegible]	[illegible]	20 23 35.2	[illegible]
23	2 35 11.61	[illegible]	20 32 35.5	[illegible]
24	2 37 13.60	[illegible]	N 20 41 30.2	[illegible]

WEDNESDAY 15.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	2 37 13.60	[illegible]	N.20 41 30.2	[illegible]
1	2 39 15.77	[illegible]	20 50 19.3	8.771
2	2 41 18.12	[illegible]	20 59 2.7	[illegible]
3	2 43 20.65	[illegible]	21 7 40.4	[illegible]
4	2 45 23.37	[illegible]	21 16 12.3	[illegible]
5	2 47 26.27	[illegible]	21 24 38.5	[illegible]
6	2 49 29.35	[illegible]	21 32 58.8	[illegible]
7	2 51 32.61	[illegible]	21 41 13.3	[illegible]
8	2 53 36.06	[illegible]	21 49 21.9	[illegible]
9	2 55 39.69	[illegible]	21 57 24.5	[illegible]
10	2 57 43.51	[illegible]	22 5 21.1	[illegible]
11	2 59 47.51	[illegible]	22 13 11.7	[illegible]
12	3 1 51.69	[illegible]	22 20 56.1	[illegible]
13	3 3 56.06	[illegible]	22 28 34.5	[illegible]
14	3 6 0.61	[illegible]	22 36 6.7	[illegible]
15	3 8 5.34	[illegible]	22 43 32.8	[illegible]
16	3 10 10.26	[illegible]	22 50 52.7	[illegible]
17	3 12 15.36	[illegible]	22 58 6.3	[illegible]
18	3 14 20.64	[illegible]	23 5 13.6	[illegible]
19	3 16 26.11	[illegible]	23 12 14.6	[illegible]
20	3 18 31.76	[illegible]	23 19 9.3	[illegible]
21	3 20 37.59	[illegible]	23 25 57.5	[illegible]
22	3 22 43.59	[illegible]	23 32 39.3	[illegible]
23	3 24 49.75	[illegible]	N.23 39 14.7	[illegible]

THURSDAY 16.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	3 26 56.15	[illegible]	N.23 45 43.5	[illegible]
1	3 29 2.69	[illegible]	23 52 5.8	[illegible]
2	3 31 9.41	[illegible]	23 58 21.6	[illegible]
3	3 33 16.31	[illegible]	24 4 30.7	[illegible]
4	3 35 23.38	[illegible]	24 10 33.2	[illegible]
5	3 37 30.63	[illegible]	24 16 29.0	[illegible]
6	3 39 38.05	[illegible]	24 22 18.1	[illegible]
7	3 41 45.64	[illegible]	24 28 0.5	[illegible]
8	3 43 53.40	[illegible]	24 33 36.1	[illegible]
9	3 46 1.33	[illegible]	24 39 5.0	[illegible]
10	3 48 9.43	[illegible]	24 44 27.0	[illegible]
11	3 50 17.69	[illegible]	24 49 42.1	[illegible]
12	3 52 26.11	[illegible]	24 54 50.3	[illegible]
13	3 54 34.70	[illegible]	24 59 51.6	[illegible]
14	3 56 43.45	[illegible]	25 4 46.0	[illegible]
15	3 58 52.35	[illegible]	25 9 33.4	[illegible]
16	4 1 1.42	[illegible]	25 14 13.7	[illegible]
17	4 3 10.64	[illegible]	25 18 47.0	[illegible]
18	4 5 20.01	[illegible]	25 23 13.8	[illegible]
19	4 7 29.53	[illegible]	25 27 32.4	[illegible]
20	4 9 39.21	[illegible]	25 31 44.4	[illegible]
21	4 11 49.03	[illegible]	25 35 49.3	[illegible]
22	4 13 58.99	[illegible]	25 39 47.0	[illegible]
23	4 16 9.10	[illegible]	25 43 37.4	[illegible]
24	4 18 19.34	[illegible]	N 25 47 20.6	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 17.			
	h m s	s	° ′ ″	″
0	4 18 19.34	2.1719	N.25 47 20.6	3.660
1	4 20 29.73	2.1742	25 50 56.6	3.539
2	4 22 40.25	2.1764	25 54 25.3	3.418
3	4 24 50.90	2.1787	25 57 46.7	3.296
4	4 27 1.69	2.1809	26 1 0.8	3.174
5	4 29 12.61	2.1830	26 4 7.6	3.052
6	4 31 23.65	2.1851	26 7 7.0	2.928
7	4 33 34.82	2.1871	26 9 58.9	2.805
8	4 35 46.10	2.1890	26 12 43.4	2.680
9	4 37 57.50	2.1909	26 15 20.5	2.556
10	4 40 9.01	2.1928	26 17 50.1	2.432
11	4 42 20.64	2.1947	26 20 12.3	2.307
12	4 44 32.38	2.1965	26 22 26.9	2.181
13	4 46 44.22	2.1982	26 24 34.0	2.056
14	4 48 56.17	2.2000	26 26 33.6	1.930
15	4 51 8.22	2.2016	26 28 25.6	1.804
16	4 53 20.36	2.2032	26 30 10.1	1.678
17	4 55 32.60	2.2048	26 31 46.9	1.551
18	4 57 44.93	2.2063	26 33 16.2	1.424
19	4 59 57.35	2.2077	26 34 37.8	1.297
20	5 2 9.85	2.2091	26 35 51.8	1.169
21	5 4 22.44	2.2104	26 36 58.1	1.041
22	5 6 35.10	2.2117	26 37 56.7	0.913
23	5 8 47.84	2.2128	N.26 38 47.7	0.785
	SATURDAY 18.			
0	5 11 0.64	2.2140	N.26 39 30.9	0.657
1	5 13 13.52	2.2152	26 40 6.5	0.528
2	5 15 26.46	2.2162	26 40 34.3	0.399
3	5 17 39.46	2.2172	26 40 54.4	0.270
4	5 19 52.52	2.2182	26 41 6.7	0.141
5	5 22 5.64	2.2191	26 41 11.3	+ 0.012
6	5 24 18.81	2.2198	26 41 8.1	− 0.118
7	5 26 32.02	2.2206	26 40 57.2	0.247
8	5 28 45.28	2.2213	26 40 38.5	0.377
9	5 30 58.58	2.2220	26 40 12.0	0.506
10	5 33 11.92	2.2227	26 39 37.8	0.636
11	5 35 25.30	2.2232	26 38 55.7	0.766
12	5 37 38.70	2.2236	26 38 5.9	0.896
13	5 39 52.13	2.2241	26 37 8.2	1.027
14	5 42 5.59	2.2245	26 36 2.7	1.157
15	5 44 19.07	2.2248	26 34 49.4	1.287
16	5 46 32.57	2.2252	26 33 28.3	1.417
17	5 48 46.09	2.2253	26 31 59.4	1.547
18	5 50 59.61	2.2254	26 30 22.7	1.677
19	5 53 13.14	2.2255	26 28 38.1	1.808
20	5 55 26.67	2.2256	26 26 45.7	1.939
21	5 57 40.21	2.2257	26 24 45.4	2.069
22	5 59 53.75	2.2256	26 22 37.4	2.199
23	6 2 7.28	2.2253	26 20 21.5	2.331
24	6 4 20.79	2.2252	N.26 17 57.7	2.461

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 19.			
	h m s	s	° ′ ″	″
0	6 4 20.79	2.2252	N.26 17 57.7	2.461
1	6 6 34.30	2.2250	26 15 26.2	2.590
2	6 8 47.79	2.2247	26 12 46.9	2.720
3	6 11 1.26	2.2243	26 9 59.8	2.850
4	6 13 14.71	2.2240	26 7 4.9	2.980
5	6 15 28.14	2.2236	26 4 2.2	3.110
6	6 17 41.54	2.2231	26 0 51.7	3.240
7	6 19 54 91	2.2225	25 57 33.4	3.369
8	6 22 8.24	2.2219	25 54 7.4	3.498
9	6 24 21.54	2.2213	25 50 33.6	3.628
10	6 26 34.80	2.2206	25 46 52.1	3.757
11	6 28 48.01	2.2198	25 43 2.8	3.887
12	6 31 1.17	2.2190	25 39 5.7	4.015
13	6 33 14.29	2.2182	25 35 1.0	4.143
14	6 35 27.35	2.2173	25 30 48.5	4.272
15	6 37 40.36	2.2164	25 26 28.3	4.400
16	6 39 53.32	2.2154	25 22 0.5	4.528
17	6 42 6.21	2.2143	25 17 25.0	4.656
18	6 44 19.04	2.2133	25 12 41.8	4.783
19	6 46 31.81	2.2123	25 7 51.0	4.911
20	6 48 44.51	2.2111	25 2 52.5	5.038
21	6 50 57.14	2.2098	24 57 46.4	5.165
22	6 53 9.69	2.2086	24 52 32.7	5.292
23	6 55 22.17	2.2074	N.24 47 11.5	5.418
	MONDAY 20.			
0	6 57 34.58	2.2062	N.24 41 42.6	5.544
1	6 59 46.91	2.2048	24 36 6.2	5.669
2	7 1 59.15	2.2033	24 30 22.3	5.794
3	7 4 11.31	2.2019	24 24 30.9	5.919
4	7 6 23.38	2.2005	24 18 32.0	6.043
5	7 8 35.37	2.1991	24 12 25.7	6.168
6	7 10 47.27	2.1976	24 6 11.9	6.292
7	7 12 59.08	2.1960	23 59 50.7	6.415
8	7 15 10.79	2.1944	23 53 22.1	6.538
9	7 17 22.41	2.1928	23 46 46.1	6.661
10	7 19 33.93	2.1912	23 40 2.8	6.783
11	7 21 45.35	2.1896	23 33 12.2	6.904
12	7 23 56.68	2.1879	23 26 14.3	7.026
13	7 26 7.90	2.1862	23 19 9.1	7.147
14	7 28 19.02	2.1845	23 11 56.6	7.268
15	7 30 30.04	2.1828	23 4 36.9	7.388
16	7 32 40.95	2.1810	22 57 10.0	7.508
17	7 34 51.76	2.1792	22 49 36.0	7.627
18	7 37 2.46	2.1774	22 41 54.8	7.746
19	7 39 13.05	2.1756	22 34 6.5	7.864
20	7 41 23.53	2.1738	22 26 11.1	7.982
21	7 43 33.90	2.1719	22 18 8.7	8.098
22	7 45 44.16	2.1700	22 9 59.3	8.215
23	7 47 54.30	2.1681	22 1 42.9	8.332
24	7 50 4.33	2.1663	N.21 53 19.5	8.448

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 21.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	7 50 4.33	[illegible]	N 21 53 19.5	[illegible]
1	7 52 14.25	[illegible]	21 44 49.2	[illegible]
2	7 54 24.06	[illegible]	21 36 12.0	[illegible]
3	7 56 33.75	[illegible]	21 27 28.0	[illegible]
4	7 58 43.33	[illegible]	21 18 37.1	[illegible]
5	8 0 52.79	[illegible]	21 9 39.4	[illegible]
6	8 3 2.14	[illegible]	21 0 35.0	[illegible]
7	8 5 11.37	[illegible]	20 51 23.9	[illegible]
8	8 7 20.49	[illegible]	20 42 6.1	[illegible]
9	8 9 29.49	[illegible]	20 32 41.6	[illegible]
10	8 11 38.38	[illegible]	20 23 10.5	[illegible]
11	8 13 47.15	[illegible]	20 13 32.9	[illegible]
12	8 15 55.80	[illegible]	20 3 48.7	[illegible]
13	8 18 4.34	[illegible]	19 53 58.0	[illegible]
14	8 20 12.76	[illegible]	19 44 0.9	[illegible]
15	8 22 21.07	[illegible]	19 33 57.3	[illegible]
16	8 24 29.27	[illegible]	19 23 47.4	[illegible]
17	8 26 37.35	[illegible]	19 13 31.1	[illegible]
18	8 28 45.32	[illegible]	19 3 8.5	[illegible]
19	8 30 53.17	[illegible]	18 52 39.6	[illegible]
20	8 33 0.92	[illegible]	18 42 4.6	[illegible]
21	8 35 8.55	[illegible]	18 31 23.4	[illegible]
22	8 37 16.08	[illegible]	18 20 36.0	[illegible]
23	8 39 23.50	[illegible]	N 18 9 42.6	[illegible]

WEDNESDAY 22.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	8 41 30.81	[illegible]	N 17 58 43.2	[illegible]
1	8 43 38.01	[illegible]	17 47 3[illegible]	[illegible]
2	8 45 45.11	[illegible]	17 36 26.4	[illegible]
3	8 47 52.10	[illegible]	17 25 9.1	[illegible]
4	8 49 58.99	[illegible]	17 13 45.9	[illegible]
5	8 52 5.7[illegible]	[illegible]	17 2 1[illegible].9	[illegible]
6	8 54 12.47	[illegible]	16 50 42.1	[illegible]
7	8 56 19.06	[illegible]	16 39 1.6	[illegible]
8	8 58 25.55	[illegible]	16 27 15.5	[illegible]
9	9 0 31.[illegible]5	[illegible]	16 15 23.7	[illegible]
10	9 2 38.25	[illegible]	16 3 26.4	[illegible]
11	9 4 44.4[illegible]	[illegible]	15 51 23.5	[illegible]
12	9 6 5[illegible].5[illegible]	[illegible]	15 3[illegible] 15.2	[illegible]
13	9 8 5[illegible]	[illegible]	15 27 1.4	[illegible]
14	9 11 2.55	[illegible]	15 14 42.1	[illegible]
15	9 13 [illegible].41	[illegible]	15 2 17.5	[illegible]
16	9 15 1[illegible]	[illegible]	14 4[illegible] 4[illegible].1	[illegible]
17	9 17 1[illegible]	[illegible]	14 [illegible] 13.1	[illegible]
18	9 19 25.5[illegible]	[illegible]	14 24 3[illegible].0	[illegible]
19	9 21 31.[illegible]4	[illegible]	14 11 4[illegible].5	[illegible]
20	9 23 3[illegible]	[illegible]	13 5[illegible] 57.5	[illegible]
21	9 25 41.[illegible]	[illegible]	13 46 2.2	[illegible]
22	9 27 47.22	[illegible]	13 33 1.9	[illegible]
23	9 29 52.4[illegible]	[illegible]	13 19 5[illegible].3	[illegible]
24	9 31 5[illegible]	[illegible]	N 13 6 46.8	[illegible]

THURSDAY 23.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	9 31 57.66	[illegible]	N 13 6 46.8	[illegible]
1	9 34 2.79	[illegible]	12 53 32.1	[illegible]
2	9 36 7.86	[illegible]	12 40 12.6	[illegible]
3	9 38 12.87	[illegible]	12 26 48.5	13.441
4	9 40 17.82	[illegible]	12 13 19.7	[illegible]
5	9 42 22.73	[illegible]	11 59 46.4	[illegible]
6	9 44 27.58	[illegible]	11 46 8.6	[illegible]
7	9 46 32.39	[illegible]	11 32 26.4	13.700
8	9 48 37.16	[illegible]	11 18 39.8	[illegible]
9	9 50 41.89	[illegible]	11 4 48.9	[illegible]
10	9 52 46.58	[illegible]	10 50 53.7	[illegible]
11	9 54 51.23	[illegible]	10 36 54.4	[illegible]
12	9 56 55.85	[illegible]	10 22 51.0	[illegible]
13	9 59 0.44	[illegible]	10 8 43.5	[illegible]
14	10 1 5.01	[illegible]	9 54 32.0	[illegible]
15	10 3 9.56	[illegible]	9 40 16.6	[illegible]
16	10 5 14.09	[illegible]	9 25 57.3	[illegible]
17	10 7 18.60	[illegible]	9 11 34.2	[illegible]
18	10 9 23.11	[illegible]	8 57 7.4	[illegible]
19	10 11 27.60	[illegible]	8 42 36.9	[illegible]
20	10 13 32.09	[illegible]	8 28 2.8	[illegible]
21	10 15 36.57	[illegible]	8 13 25.2	[illegible]
22	10 17 41.05	[illegible]	7 58 44.1	14.733
23	10 19 45.54	[illegible]	N. 7 43 59.6	[illegible]

FRIDAY 24.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	10 21 50.04	[illegible]	N 7 29 11.8	[illegible]
1	10 23 54.55	[illegible]	7 14 20.7	[illegible]
2	10 25 59.07	[illegible]	6 59 26.5	[illegible]
3	10 28 3.61	[illegible]	6 44 29.2	[illegible]
4	10 30 8.15	[illegible]	6 29 28.8	[illegible]
5	10 32 12.77	[illegible]	6 14 25.5	[illegible]
6	10 34 17.39	[illegible]	5 59 19.3	[illegible]
7	10 36 22.04	[illegible]	5 44 10.2	15.170
8	10 38 26.73	[illegible]	5 28 58.4	15.019
9	10 40 31.46	[illegible]	5 13 43.9	[illegible]
10	10 42 36.24	[illegible]	4 58 26.9	[illegible]
11	10 44 41.07	[illegible]	4 43 7.4	[illegible]
12	10 46 45.94	[illegible]	4 27 45.4	[illegible]
13	10 48 50.87	[illegible]	4 12 21.0	[illegible]
14	10 50 55.87	[illegible]	3 56 54.4	[illegible]
15	10 53 0.93	[illegible]	3 41 25.6	[illegible]
16	10 55 6.06	[illegible]	3 25 54.7	15.333
17	10 57 11.26	[illegible]	3 10 21.7	[illegible]
18	10 59 16.54	[illegible]	2 54 46.7	[illegible]
19	11 1 21.90	[illegible]	2 39 9.8	[illegible]
20	11 3 27.34	[illegible]	2 23 31.2	[illegible]
21	11 5 32.[illegible]	[illegible]	2 7 50.9	[illegible]
22	11 7 38.51	[illegible]	1 52 8.9	15.713
23	11 9 44.23	[illegible]	1 36 25.4	[illegible]
24	11 11 50.0[illegible]	[illegible]	N 1 20 40.4	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 25.					MONDAY 27.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	11 11 50.06	2.0980	N. 1 20 40.4	15.762	0	12 55 50.67	2.2618	S. 11 13 29.4	15.016
1	11 13 55.99	2.0998	1 4 54.0	15.783	1	12 58 6.53	2.2668	11 28 28.6	14.958
2	11 16 2.03	2.1016	0 49 6.4	15.803	2	13 0 22.68	2.2718	11 43 24.3	14.898
3	11 18 8.18	2.1035	0 33 17.6	15.822	3	13 2 39.14	2.2768	11 58 16.3	14.836
4	11 20 14.45	2.1055	0 17 27.7	15.841	4	13 4 55.90	2.2819	12 13 4.6	14.772
5	11 22 20.84	2.1076	N. 0 1 36.7	15.858	5	13 7 12.97	2.2871	12 27 48.9	14.705
6	11 24 27.36	2.1098	S. 0 14 15.2	15.873	6	13 9 30.35	2.2923	12 42 29.2	14.637
7	11 26 34.01	2.1120	0 30 8.0	15.886	7	13 11 48.05	2.2977	12 57 5.3	14.567
8	11 28 40.80	2.1143	0 46 1.5	15.898	8	13 14 6.07	2.3030	13 11 37.2	14.496
9	11 30 47.72	2.1166	1 1 55.7	15.908	9	13 16 24.41	2.3083	13 26 4.8	14.423
10	11 32 54.79	2.1190	1 17 50.5	15.917	10	13 18 43.07	2.3137	13 40 27.9	14.347
11	11 35 2.00	2.1215	1 33 45.7	15.923	11	13 21 2.05	2.3191	13 54 46.4	14.269
12	11 37 9.37	2.1241	1 49 41.3	15.929	12	13 23 21.36	2.3246	14 9 0.2	14.190
13	11 39 16.89	2.1267	2 5 37.2	15.933	13	13 25 41.00	2.3301	14 23 9.2	14.109
14	11 41 24.57	2.1294	2 21 33.3	15.936	14	13 28 0.97	2.3356	14 37 13.3	14.026
15	11 43 32.42	2.1322	2 37 29.5	15.937	15	13 30 21.27	2.3412	14 51 12.3	13.940
16	11 45 40.43	2.1350	2 53 25.7	15.937	16	13 32 41.91	2.3468	15 5 6.1	13.853
17	11 47 48.62	2.1380	3 9 21.9	15.935	17	13 35 2.89	2.3524	15 18 54.7	13.765
18	11 49 56.99	2.1410	3 25 17.9	15.931	18	13 37 24.20	2.3581	15 32 37.9	13.674
19	11 52 5.54	2.1440	3 41 13.6	15.925	19	13 39 45.86	2.3638	15 46 15.6	13.581
20	11 54 14.27	2.1471	3 57 8.9	15.918	20	13 42 7.86	2.3695	15 59 47.6	13.487
21	11 56 23.19	2.1503	4 13 3.8	15.910	21	13 44 30.20	2.3753	16 13 14.0	13.391
22	11 58 32.31	2.1536	4 28 58.1	15.899	22	13 46 52.89	2.3810	16 26 34.5	13.292
23	12 0 41.62	2.1569	S. 4 44 51.7	15.887	23	13 49 15.92	2.3867	S. 16 39 49.0	13.191
	SUNDAY 26.					TUESDAY 28.			
0	12 2 51.14	2.1603	S. 5 0 44.5	15.873	0	13 51 39.29	2.3924	S. 16 52 57.4	13.089
1	12 5 0.86	2.1638	5 16 36.5	15.858	1	13 54 3.01	2.3982	17 5 59.7	12.985
2	12 7 10.80	2.1674	5 32 27.5	15.841	2	13 56 27.08	2.4041	17 18 55.6	12.879
3	12 9 20.95	2.1709	5 48 17.4	15.822	3	13 58 51.50	2.4099	17 31 45.2	12.772
4	12 11 31.31	2.1746	6 4 6.1	15.802	4	14 1 16.27	2.4157	17 44 28.2	12.662
5	12 13 41.90	2.1784	6 19 53.6	15.779	5	14 3 41.39	2.4215	17 57 4.6	12.550
6	12 15 52.72	2.1823	6 35 39.6	15.754	6	14 6 6.85	2.4273	18 9 34.2	12.437
7	12 18 3.77	2.1862	6 51 24.1	15.729	7	14 8 32.67	2.4332	18 21 57.0	12.322
8	12 20 15.06	2.1901	7 7 7.1	15.702	8	14 10 58.83	2.4389	18 34 12.8	12.204
9	12 22 26.58	2.1941	7 22 48.4	15.673	9	14 13 25.34	2.4447	18 46 21.5	12.086
10	12 24 38.35	2.1982	7 38 27.8	15.641	10	14 15 52.20	2.4506	18 58 23.1	11.966
11	12 26 50.36	2.2023	7 54 5.3	15.608	11	14 18 19.41	2.4565	19 10 17.4	11.843
12	12 29 2.62	2.2065	8 9 40.8	15.574	12	14 20 46.96	2.4622	19 22 4.2	11.718
13	12 31 15.14	2.2108	8 25 14.2	15.538	13	14 23 14.86	2.4678	19 33 43.6	11.592
14	12 33 27.91	2.2151	8 40 45.3	15.499	14	14 25 43.10	2.4735	19 45 15.3	11.464
15	12 35 40.95	2.2195	8 56 14.1	15.459	15	14 28 11.68	2.4792	19 56 39.3	11.335
16	12 37 54.25	2.2239	9 11 40.4	15.417	16	14 30 40.61	2.4849	20 7 55.5	11.203
17	12 40 7.82	2.2285	9 27 4.1	15.373	17	14 33 9.87	2.4905	20 19 3.7	11.070
18	12 42 21.67	2.2331	9 42 25.2	15.328	18	14 35 39.47	2.4962	20 30 3.9	10.936
19	12 44 35.79	2.2377	9 57 43.5	15.281	19	14 38 9.41	2.5018	20 40 56.0	10.799
20	12 46 50.19	2.2424	10 12 58.9	15.232	20	14 40 39.68	2.5073	20 51 39.8	10.661
21	12 49 4.88	2.2472	10 28 11.3	15.181	21	14 43 10.29	2.5128	21 2 15.3	10.522
22	12 51 19.85	2.2519	10 43 20.6	15.128	22	14 45 41.22	2.5183	21 12 42.4	10.380
23	12 53 35.11	2.2568	10 58 26.7	15.073	23	14 48 12.48	2.5237	21 23 0.9	10.237
24	12 55 50.67	2.2618	S. 11 13 29.4	15.016	24	14 50 44.06	2.5290	S. 21 33 10.8	10.092

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 29.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	14 50 44.06	[illegible]	S.21 33 10.8	[illegible]
1	14 53 15.96	[illegible]	21 43 12.0	[illegible]
2	14 55 48.17	[illegible]	21 53 4.3	[illegible]
3	14 58 20.70	[illegible]	22 2 47.7	[illegible]
4	15 0 53.54	[illegible]	22 12 22.1	[illegible]
5	15 3 26.68	[illegible]	22 21 47.4	[illegible]
6	15 6 0.12	[illegible]	22 31 3.5	[illegible]
7	15 8 33.86	[illegible]	22 40 10.3	[illegible]
8	15 11 7.89	[illegible]	22 49 7.7	[illegible]
9	15 13 42.21	[illegible]	22 57 55.7	[illegible]
10	15 16 16.81	[illegible]	23 6 34.1	[illegible]
11	15 18 51.69	[illegible]	23 15 3.0	[illegible]
12	15 21 26.85	[illegible]	23 23 22.1	[illegible]
13	15 24 2.27	[illegible]	23 31 31.6	[illegible]
14	15 26 37.95	[illegible]	23 39 31.1	[illegible]
15	15 29 13.88	[illegible]	23 47 20.6	[illegible]
16	15 31 50.07	[illegible]	23 55 0.2	[illegible]
17	15 34 26.50	[illegible]	24 2 29.7	[illegible]
18	15 37 3.16	[illegible]	24 9 49.1	[illegible]
19	15 39 40.06	[illegible]	24 16 58.3	[illegible]
20	15 42 17.19	[illegible]	24 23 57.2	[illegible]
21	15 44 54.53	[illegible]	24 30 45.7	[illegible]
22	15 47 32.09	[illegible]	24 37 23.9	[illegible]
23	15 50 9.85	[illegible]	S.24 43 51.6	[illegible]

THURSDAY 30.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	15 52 47.80	[illegible]	S.24 50 8.9	[illegible]
1	15 55 25.95	[illegible]	24 56 15.4	[illegible]
2	15 58 4.28	[illegible]	25 2 11.4	[illegible]
3	16 0 42.79	[illegible]	25 7 56.7	[illegible]
4	16 3 21.45	[illegible]	25 13 31.2	[illegible]
5	16 6 0.27	[illegible]	25 18 55.0	[illegible]
6	16 8 39.25	[illegible]	25 24 8.0	[illegible]
7	16 11 18.37	[illegible]	25 29 10.1	[illegible]
8	16 13 57.62	[illegible]	25 34 1.3	[illegible]
9	16 16 37.00	[illegible]	25 38 41.9	[illegible]
10	16 19 16.49	[illegible]	25 43 10.9	[illegible]
11	16 21 56.09	[illegible]	25 47 29.1	[illegible]
12	16 24 35.79	[illegible]	25 51 36.3	[illegible]
13	16 27 15.58	[illegible]	25 55 32.4	[illegible]
14	16 29 55.45	[illegible]	25 59 17.4	[illegible]
15	16 32 35.[illegible]	[illegible]	26 2 51.3	[illegible]
16	16 35 15.40	[illegible]	26 6 14.0	[illegible]
17	16 37 55.46	[illegible]	26 9 25.6	[illegible]
18	16 40 35.56	[illegible]	26 12 26.0	[illegible]
19	16 43 15.70	[illegible]	26 15 15.1	[illegible]
20	16 45 55.87	[illegible]	26 17 51.1	[illegible]
21	16 48 36.05	[illegible]	26 20 14.8	[illegible]
22	16 51 16.24	[illegible]	26 22 25.3	[illegible]
23	16 53 56.43	[illegible]	26 24 19.6	[illegible]
24	16 56 36.61	[illegible]	S.26 26 32.7	[illegible]

FRIDAY, OCTOBER 1.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	16 56 36.61	[illegible]	S.26 26 32.7	[illegible]

PHASES OF THE MOON.

			d	h	m
☽	First Quarter	Sept.	3	11	13.2
○	Full Moon		10	14	11.8
☾	Last Quarter		18	14	50.7
●	New Moon		26	1	46.4

			d	h
☾	Perigee	Sept.	1	10.2
☾	Apogee		16	16.2
☾	Perigee		28	22.4

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	57 19 10	2567	58 58 50	2568	60 38 29	2568	62 18 8	2569
	Mars	W.	32 31 53	2514	34 12 47	2509	35 53 48	2505	37 34 54	2502
	Antares	E.	31 47 15	2256	30 0 11	2256	28 13 7	2257	26 26 4	2258
	α Aquilæ	E.	87 15 5	2869	85 42 6	2871	84 9 10	2876	82 36 20	2881
2	Sun	W.	70 36 2	2576	72 15 30	2577	73 54 56	2580	75 34 19	2582
	Mars	W.	46 1 2	2498	47 42 18	2499	49 23 33	2499	51 4 47	2500
	Spica	W.	28 26 43	2289	30 12 59	2288	31 59 16	2289	33 45 32	2289
	α Aquilæ	E.	74 54 34	2931	73 22 54	2946	71 51 33	2962	70 20 32	2979
	Fomalhaut	E.	99 0 2	2645	97 22 8	2644	95 44 13	2643	94 6 17	2644
3	Sun	W.	83 50 18	2597	85 29 17	2601	87 8 11	2604	88 47 1	2608
	Mars	W.	59 30 27	2510	61 11 26	2513	62 52 21	2516	64 33 12	2519
	Spica	W.	42 36 33	2296	44 22 38	2299	46 8 39	2302	47 54 36	2304
	α Aquilæ	E.	62 51 50	3100	61 23 40	3131	59 56 8	3165	58 29 17	3202
	Fomalhaut	E.	85 57 12	2660	84 19 38	2665	82 42 11	2672	81 4 53	2678
	α Pegasi	E.	107 33 49	2462	105 51 42	2462	104 9 36	2463	102 27 31	2464
4	Sun	W.	96 59 47	2629	98 38 3	2633	100 16 13	2638	101 54 17	2643
	Mars	W.	72 56 20	2537	74 [illegible] 42	2540	76 16 59	2545	77 57 10	2549
	Spica	W.	56 43 15	2321	58 28 44	2325	60 14 7	2328	61 59 25	2333
	Saturn	W.	24 34 8	2504	26 15 16	2487	27 56 47	2475	29 38 35	2465
	Fomalhaut	E.	73 1 8	2728	71 25 5	2740	69 49 18	2754	68 13 50	2769
	α Pegasi	E.	93 57 40	2476	92 15 53	2480	90 34 12	2484	88 52 36	2489
5	Sun	W.	110 2 54	2669	111 40 16	2674	113 17 31	2680	114 54 37	2686
	Mars	W.	86 16 30	2573	87 56 2	2578	89 35 27	2584	91 14 44	2589
	Spica	W.	70 44 22	2355	72 29 2	2359	74 13 35	2364	75 58 1	2369
	Saturn	W.	38 10 1	2445	39 52 32	2445	41 35 3	2445	43 17 34	2446
	Antares	W.	24 53 43	2348	26 38 33	2353	28 23 15	2358	30 7 50	2364
	Fomalhaut	E.	60 21 59	2866	58 48 56	2890	57 16 24	2916	55 44 26	2945
	α Pegasi	E.	80 26 23	2517	78 45 33	2524	77 4 53	2532	75 24 24	2539
6	Sun	W.	122 58 13	2716	124 34 31	2724	126 10 39	2731	127 46 38	2738
	Mars	W.	99 29 16	2618	101 7 46	2625	102 46 7	2631	104 24 20	2638
	Spica	W.	84 38 19	2396	86 21 59	2403	88 5 30	2408	89 48 53	2414
	Saturn	W.	51 49 31	2458	53 31 43	2462	55 13 49	2466	56 55 50	2471
	Antares	W.	38 48 50	2391	40 32 38	2396	42 16 18	2402	43 59 50	2408
	Fomalhaut	E.	48 14 45	3133	46 47 16	3183	45 20 47	3237	43 55 22	3298
	α Pegasi	E.	67 4 54	2587	65 25 41	2598	63 46 43	2610	62 8 2	2623
	α Arietis	E.	109 7 40	2408	107 24 16	2412	105 40 59	2418	103 57 50	2424
7	Spica	W.	98 23 36	2447	100 6 4	2453	101 48 23	2460	103 30 32	2467
	Saturn	W.	65 24 11	2497	67 5 29	2503	68 46 38	2509	70 27 39	2516
	Antares	W.	52 35 16	2441	54 17 53	2447	56 0 21	2454	57 42 39	2462
	α Pegasi	E.	53 59 20	2701	52 22 42	2720	50 46 29	2741	49 10 43	2763
	α Arietis	E.	95 24 16	2455	93 42 0	2462	91 59 54	2470	90 17 58	2477
8	Saturn	W.	78 50 20	2551	80 30 22	2559	82 10 14	2567	83 49 54	2573
	Antares	W.	66 11 32	2499	67 52 47	2507	69 33 50	2515	71 14 42	2524
	α Arietis	E.	81 50 52	2515	80 9 59	2523	78 29 18	2531	76 48 48	2540
	Aldebaran	E.	113 57 2	2575	112 17 33	2581	110 38 12	2588	108 59 0	2594

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XV^h.	P. L. of Diff.	XVIII^h.	P. L. of Diff.	XXI^h.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	63 57 46	[illegible]	65 37 23	[illegible]	67 16 58	[illegible]	68 56 31	[illegible]
	Mars	W.	39 16 4	[illegible]	40 57 17	[illegible]	42 38 31	[illegible]	44 19 46	[illegible]
	Antares	E.	24 39 2	[illegible]	22 52 1	[illegible]	21 5 2	[illegible]	19 18 5	[illegible]
	α Aquilæ	E.	81 3 37	[illegible]	79 31 3	[illegible]	77 58 40	[illegible]	76 26 30	[illegible]
2	Sun	W.	77 13 39	[illegible]	78 52 55	[illegible]	80 32 7	[illegible]	82 11 15	[illegible]
	Mars	W.	52 46 0	[illegible]	54 27 11	[illegible]	56 8 19	[illegible]	57 49 25	[illegible]
	Spica	W.	35 31 48	[illegible]	37 18 2	[illegible]	39 4 15	[illegible]	40 50 25	[illegible]
	α Aquilæ	E.	68 49 53	[illegible]	67 19 39	[illegible]	65 49 52	[illegible]	64 20 35	[illegible]
	Fomalhaut	E.	92 25 22	[illegible]	90 50 29	[illegible]	89 12 39	[illegible]	87 34 53	[illegible]
3	Sun	W.	90 25 45	[illegible]	92 4 24	[illegible]	93 42 57	[illegible]	95 21 25	[illegible]
	Mars	W.	66 13 50	[illegible]	67 54 41	[illegible]	69 35 19	[illegible]	71 15 52	[illegible]
	Spica	W.	49 40 2[illegible]	[illegible]	51 26 18	[illegible]	53 12 2	[illegible]	54 57 41	[illegible]
	α Aquilæ	E.	57 3 10	[illegible]	55 37 52	[illegible]	54 13 27	[illegible]	52 49 58	[illegible]
	Fomalhaut	E.	79 27 44	[illegible]	77 50 46	[illegible]	76 14 0	[illegible]	74 37 27	[illegible]
	α Pegasi	E.	100 45 27	[illegible]	99 3 26	[illegible]	97 21 27	[illegible]	95 39 32	[illegible]
4	Sun	W.	103 32 14	[illegible]	105 10 4	[illegible]	106 47 48	[illegible]	108 25 25	[illegible]
	Mars	W.	79 37 15	[illegible]	81 17 14	[illegible]	82 57 6	[illegible]	84 36 51	[illegible]
	Spica	W.	63 44 37	[illegible]	65 29 43	[illegible]	67 14 42	[illegible]	68 59 35	[illegible]
	Saturn	W.	31 20 37	[illegible]	33 2 40	[illegible]	34 45 5	[illegible]	36 27 33	[illegible]
	Fomalhaut	E.	66 38 41	[illegible]	65 3 54	[illegible]	63 2[illegible] 30	[illegible]	61 55 31	[illegible]
	α Pegasi	E.	87 11 7	[illegible]	85 29 44	[illegible]	83 48 29	[illegible]	82 7 22	[illegible]
5	Sun	W.	116 31 37	[illegible]	118 8 2[illegible]	[illegible]	119 45 12	[illegible]	121 21 47	[illegible]
	Mars	W.	92 53 5[illegible]	[illegible]	94 32 5[illegible]	[illegible]	96 11 51	[illegible]	97 50 38	[illegible]
	Spica	W.	77 42 20	[illegible]	79 26 11	[illegible]	81 10 35	[illegible]	82 54 31	[illegible]
	Saturn	W.	45 0 1	[illegible]	46 42 [illegible]	[illegible]	48 24 54	[illegible]	50 7 15	[illegible]
	Antares	W.	31 52 17	[illegible]	33 36 1	[illegible]	35 20 4[illegible]	[illegible]	37 4 54	[illegible]
	Fomalhaut	E.	54 13 4	[illegible]	5[illegible] 42 2[illegible]	[illegible]	51 12 22	[illegible]	49 43 8	[illegible]
	α Pegasi	E.	73 44 5	[illegible]	72 3 5[illegible]	[illegible]	70 24 3	[illegible]	68 44 22	[illegible]
6	Sun	W.	129 22 28	[illegible]	13[illegible] 58 [illegible]	[illegible]	132 33 36	[illegible]	134 8 58	[illegible]
	Mars	W.	10[illegible] 2 21	[illegible]	10[illegible] 4 1[illegible]	[illegible]	10[illegible] [illegible] 2	[illegible]	110 55 37	[illegible]
	Spica	W.	91 32 [illegible]	[illegible]	93 [illegible] 14	[illegible]	94 58 10	[illegible]	96 40 58	[illegible]
	Saturn	W.	58 37 44	[illegible]	6[illegible] [illegible] 1[illegible]	[illegible]	62 1 12	[illegible]	63 42 45	[illegible]
	Antares	W.	45 43 13	[illegible]	47 26 2[illegible]	[illegible]	49 9 33	[illegible]	50 52 39	[illegible]
	Fomalhaut	E.	42 31 [illegible]	[illegible]	4[illegible] 8 11	[illegible]	3[illegible] 4[illegible] 3[illegible]	[illegible]	38 26 40	[illegible]
	α Pegasi	E.	60 2[illegible] 38	[illegible]	58 51 3[illegible]	[illegible]	57 13 47	[illegible]	55 36 22	[illegible]
	α Arietis	E.	102 14 5	[illegible]	100 31 58	[illegible]	98 4[illegible] 15	[illegible]	97 6 41	[illegible]
7	Spica	W.	105 12 1	[illegible]	106 54 1[illegible]	[illegible]	108 35 57	[illegible]	110 17 24	[illegible]
	Saturn	W.	72 [illegible] [illegible]	[illegible]	73 4[illegible] 12	[illegible]	75 [illegible] 48	[illegible]	77 10 8	[illegible]
	Antares	W.	5[illegible] 24 4[illegible]	[illegible]	6[illegible] 6 41	[illegible]	62 48 3[illegible]	[illegible]	64 30 6	[illegible]
	α Pegasi	E.	47 [illegible] 2[illegible]	[illegible]	4[illegible] 0 4[illegible]	[illegible]	44 26 32	[illegible]	42 52 59	[illegible]
	α Arietis	E.	88 3[illegible] 12	[illegible]	86 44 3[illegible]	[illegible]	85 13 11	[illegible]	83 31 56	[illegible]
8	Saturn	W.	8[illegible] [illegible] [illegible]	[illegible]	8[illegible] 9 4[illegible]	[illegible]	88 47 46	[illegible]	90 26 40	[illegible]
	Antares	W.	7[illegible] [illegible] [illegible]	[illegible]	74 35 [illegible]	[illegible]	76 16 7	[illegible]	77 56 12	[illegible]
	α Arietis	E.	75 8 [illegible]	[illegible]	7[illegible] [illegible] 24	[illegible]	71 48 31	[illegible]	70 8 50	[illegible]
	Aldebaran	E.	107 1[illegible] 5[illegible]	[illegible]	10[illegible] 41 4	[illegible]	104 2 21	[illegible]	102 23 49	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	SATURN	W.	92 5 21	2619	93 43 50	2629	95 22 6	2638	97 0 9	2648
	Antares	W.	79 36 4	2567	81 15 44	2577	82 55 11	2585	84 34 26	2596
	α Arietis	E.	68 29 22	2585	66 50 7	2595	65 11 5	2604	63 32 16	2615
	Aldebaran	E.	100 45 28	2633	99 7 18	2642	97 29 20	2651	95 51 34	2660
10	SATURN	W.	105 7 3	2699	106 43 44	2710	108 20 11	2721	109 56 23	2732
	Antares	W.	92 47 20	2644	94 25 15	2655	96 2 56	2665	97 40 23	2675
	α Aquilæ	W.	46 35 56	3959	47 48 16	3903	49 1 33	3853	50 15 41	3807
	α Arietis	E.	55 21 43	2668	53 44 20	2679	52 7 12	2690	50 30 19	2701
	Aldebaran	E.	87 45 52	2708	86 9 23	2719	84 33 8	2729	82 57 7	2741
11	Antares	W.	105 44 8	2728	107 20 11	2739	108 55 59	2750	110 31 33	2760
	α Aquilæ	W.	56 36 28	3649	57 54 10	3627	59 12 15	3609	60 30 40	3593
	α Arietis	E.	42 29 50	2763	40 54 34	2776	39 19 35	2790	37 44 54	2803
	Aldebaran	E.	75 0 41	2797	73 26 9	2808	71 51 52	2821	70 17 51	2832
	Pollux	E.	117 11 9	2753	115 35 39	2763	114 0 22	2773	112 25 19	2783
12	α Aquilæ	W.	67 6 20	3543	68 25 57	3538	69 45 39	3534	71 5 26	3530
	Fomalhaut	W.	42 8 16	3722	43 24 40	3682	44 41 46	3647	45 59 30	3615
	Aldebaran	E.	62 31 45	2896	60 59 21	2909	59 27 14	2923	57 55 24	2936
	Pollux	E.	104 33 24	2835	102 59 42	2845	101 26 13	2855	99 52 57	2866
13	α Aquilæ	W.	77 44 36	3535	79 4 22	3537	80 24 5	3542	81 43 43	3545
	Fomalhaut	W.	52 35 22	3509	53 55 36	3496	55 16 5	3484	56 36 47	3474
	α Pegasi	W.	29 59 55	3608	31 18 21	3558	32 37 41	3515	33 57 48	3480
	Aldebaran	E.	50 20 35	3007	48 50 31	3022	47 20 46	3038	45 51 20	3054
	Pollux	E.	92 9 58	2917	90 38 1	2927	89 6 16	2937	87 34 44	2946
14	α Aquilæ	W.	88 20 27	3578	89 39 25	3586	90 58 15	3594	92 16 56	3603
	Fomalhaut	W.	63 22 37	3442	64 44 6	3439	66 5 38	3437	67 27 13	3434
	α Pegasi	W.	40 46 47	3363	42 9 46	3349	43 33 1	3337	44 56 30	3327
	Aldebaran	E.	38 29 19	3143	37 2 2	3163	35 35 9	3186	34 8 43	3209
	Pollux	E.	79 59 57	2991	78 29 33	3000	76 59 20	3008	75 29 17	3016
	VENUS	E.	104 6 33	3415	102 44 33	3423	101 22 43	3433	100 1 4	3441
	Regulus	E.	116 56 8	2976	115 25 25	2984	113 54 52	2991	112 24 29	2999
	SUN	E.	140 19 10	3356	138 56 3	3364	137 33 5	3372	136 10 16	3379
15	α Aquilæ	W.	98 47 45	3654	100 5 21	3666	101 22 44	3678	102 39 54	3691
	Fomalhaut	W.	74 15 32	3431	75 37 13	3432	76 58 53	3433	78 20 32	3433
	α Pegasi	W.	51 56 22	3293	53 20 42	3288	54 45 7	3285	56 9 36	3282
	Pollux	E.	68 1 25	3052	66 32 17	3058	65 3 16	3065	63 34 23	3070
	VENUS	E.	93 15 4	3480	91 54 17	3487	90 33 38	3492	89 13 5	3498
	Regulus	E.	104 54 48	3033	103 25 16	3039	101 55 51	3044	100 26 33	3049
	SUN	E.	129 18 13	3413	127 56 11	3419	126 34 16	3424	125 12 27	3430
16	Fomalhaut	W.	85 8 31	3440	86 30 2	3442	87 51 31	3444	89 12 58	3445
	α Pegasi	W.	63 12 53	3269	64 37 41	3266	66 2 32	3264	67 27 26	3262
	α Arietis	W.	19 37 5	3194	21 3 21	3183	22 29 50	3173	23 56 32	3163
	Pollux	E.	56 11 35	3094	54 43 18	3098	53 15 6	3101	51 46 58	3105
	VENUS	E.	82 31 50	3521	81 11 49	3524	79 51 51	3527	78 31 57	3529
	Regulus	E.	93 1 25	3069	91 32 37	3071	90 3 52	3073	88 35 10	3076
	SUN	E.	118 24 42	3450	117 3 22	3453	115 42 5	3455	114 20 51	3456

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Saturn	W.	98 37 59	[illegible]	100 15 36	[illegible]	101 52 59	[illegible]	103 30 8	[illegible]
	Antares	W.	86 13 27	[illegible]	87 52 15	[illegible]	89 30 50	[illegible]	91 9 12	[illegible]
	α Arietis	E.	61 53 41	[illegible]	60 15 20	[illegible]	58 37 13	[illegible]	56 59 21	[illegible]
	Aldebaran	E.	94 14 0	[illegible]	92 36 39	[illegible]	90 59 30	[illegible]	89 22 34	[illegible]
10	Saturn	W.	111 32 20	[illegible]	113 8 3	[illegible]	114 43 50	[illegible]	116 18 42	[illegible]
	Antares	W.	99 17 36	[illegible]	100 54 35	[illegible]	102 31 20	[illegible]	104 7 51	[illegible]
	α Aquilæ	W.	51 30 36	[illegible]	52 46 13	[illegible]	54 2 26	[illegible]	55 19 12	[illegible]
	α Arietis	E.	48 53 41	[illegible]	47 17 19	[illegible]	45 41 13	[illegible]	44 5 23	[illegible]
	Aldebaran	E.	81 21 21	[illegible]	79 45 49	[illegible]	78 10 31	[illegible]	76 35 28	[illegible]
11	Antares	W.	112 6 53	[illegible]	113 41 50	[illegible]	115 16 50	[illegible]	116 51 27	[illegible]
	α Aquilæ	W.	61 49 22	[illegible]	63 8 20	[illegible]	64 27 30	[illegible]	65 46 51	[illegible]
	α Arietis	E.	36 10 30	[illegible]	34 36 25	[illegible]	33 2 39	[illegible]	31 29 13	[illegible]
	Aldebaran	E.	68 44 5	[illegible]	67 10 35	[illegible]	65 37 22	[illegible]	64 4 25	[illegible]
	Pollux	E.	110 50 29	[illegible]	109 15 52	[illegible]	107 41 29	[illegible]	106 7 20	[illegible]
12	α Aquilæ	W.	72 25 15	[illegible]	73 45 6	[illegible]	75 4 57	[illegible]	76 24 47	[illegible]
	Fomalhaut	W.	47 17 48	[illegible]	48 36 36	[illegible]	49 55 49	[illegible]	51 15 25	[illegible]
	Aldebaran	E.	56 23 51	[illegible]	54 52 35	[illegible]	53 21 37	[illegible]	51 50 57	[illegible]
	Pollux	E.	98 11 55	[illegible]	96 47 6	[illegible]	95 14 31	[illegible]	93 42 8	[illegible]
13	α Aquilæ	W.	83 3 17	[illegible]	84 22 45	[illegible]	85 42 6	[illegible]	87 1 20	[illegible]
	Fomalhaut	W.	57 57 40	[illegible]	59 18 43	[illegible]	60 39 55	[illegible]	62 1 13	[illegible]
	α Pegasi	W.	35 18 35	[illegible]	36 39 57	[illegible]	38 1 40	[illegible]	39 24 7	[illegible]
	Aldebaran	E.	44 22 14	[illegible]	42 53 28	[illegible]	41 25 3	[illegible]	39 57 0	[illegible]
	Pollux	E.	86 3 23	[illegible]	84 32 14	[illegible]	83 1 17	[illegible]	81 30 31	[illegible]
14	α Aquilæ	W.	93 35 27	[illegible]	94 53 48	[illegible]	96 11 58	[illegible]	97 29 57	[illegible]
	Fomalhaut	W.	68 48 51	[illegible]	70 10 30	[illegible]	71 32 10	[illegible]	72 53 51	[illegible]
	α Pegasi	W.	46 20 10	[illegible]	47 44 0	[illegible]	49 8 0	[illegible]	50 32 8	[illegible]
	Aldebaran	E.	32 42 45	[illegible]	31 17 17	[illegible]	29 52 23	[illegible]	28 28 5	[illegible]
	Pollux	E.	73 59 24	[illegible]	72 29 41	[illegible]	71 0 7	[illegible]	69 30 42	[illegible]
	Venus	E.	98 39 34	[illegible]	97 18 14	[illegible]	95 57 2	[illegible]	94 35 59	[illegible]
	Regulus	E.	110 54 15	[illegible]	109 24 11	[illegible]	107 54 15	[illegible]	106 24 28	[illegible]
	Sun	E.	134 47 35	[illegible]	133 25 3	[illegible]	132 2 39	[illegible]	130 40 22	[illegible]
15	α Aquilæ	W.	103 56 51	[illegible]	105 13 34	[illegible]	106 30 2	[illegible]	107 46 16	[illegible]
	Fomalhaut	W.	79 42 11	[illegible]	81 3 48	[illegible]	82 25 24	[illegible]	83 46 58	[illegible]
	α Pegasi	W.	57 34 9	[illegible]	58 58 45	[illegible]	60 23 25	[illegible]	61 48 8	[illegible]
	Pollux	E.	62 5 37	[illegible]	60 36 57	[illegible]	59 8 24	[illegible]	57 39 57	[illegible]
	Venus	E.	87 43 32	[illegible]	86 22 19	[illegible]	85 12 4	[illegible]	83 51 55	[illegible]
	Regulus	E.	98 57 21	[illegible]	97 28 14	[illegible]	95 59 13	[illegible]	94 30 17	[illegible]
	Sun	E.	123 50 44	[illegible]	122 29 7	[illegible]	121 7 34	[illegible]	119 46 6	[illegible]
16	Fomalhaut	W.	90 34 24	[illegible]	91 55 48	[illegible]	93 17 10	[illegible]	94 38 30	[illegible]
	α Pegasi	W.	68 52 22	[illegible]	70 17 21	[illegible]	71 42 23	[illegible]	73 7 28	[illegible]
	α Arietis	W.	25 21 26	[illegible]	26 50 30	[illegible]	28 17 42	[illegible]	29 45 2	[illegible]
	Pollux	E.	50 18 54	[illegible]	48 50 43	[illegible]	47 22 56	[illegible]	45 55 2	[illegible]
	Venus	E.	77 12 5	[illegible]	75 52 15	[illegible]	74 32 27	[illegible]	73 12 32	[illegible]
	Regulus	E.	87 6 31	[illegible]	85 37 53	[illegible]	84 9 17	[illegible]	82 40 41	[illegible]
	Sun	E.	112 53 38	[illegible]	111 35 27	[illegible]	110 17 17	[illegible]	108 59 8	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Fomalhaut	W.	95 59 48	3454	97 21 4	3455	98 42 18	3456	100 3 31	3459
	α Pegasi	W.	74 32 36	3248	75 57 48	3246	77 23 3	3242	78 48 22	3238
	α Arietis	W.	31 12 30	3129	32 40 4	3124	34 7 44	3119	35 35 30	3114
	Pollux	E.	44 27 10	3116	42 59 20	3118	41 31 32	3119	40 3 46	3120
	Venus	E.	71 52 52	3533	70 33 4	3533	69 13 16	3532	67 53 27	3529
	Regulus	E.	81 12 5	3078	79 43 29	3078	78 14 52	3076	76 46 13	3074
	Sun	E.	107 34 59	3460	106 13 50	3458	104 52 39	3457	103 31 27	3454
18	α Pegasi	W.	85 56 7	3217	87 21 56	3212	88 47 51	3207	90 13 52	3201
	α Arietis	W.	42 55 56	3086	44 24 23	3080	45 52 57	3073	47 21 39	3066
	Pollux	E.	32 45 15	3126	31 17 37	3128	29 50 1	3130	28 22 28	3133
	Venus	E.	61 13 37	3513	59 53 27	3507	58 33 11	3502	57 12 49	3497
	Regulus	E.	69 22 15	3058	67 53 14	3054	66 24 8	3049	64 54 56	3043
	Sun	E.	96 44 40	3438	95 23 6	3432	94 1 26	3427	92 39 40	3420
19	α Pegasi	W.	97 25 45	3169	98 52 31	3163	100 19 25	3155	101 46 28	3147
	α Arietis	W.	54 47 29	3026	56 17 10	3017	57 47 2	3006	59 17 7	2997
	Aldebaran	W.	24 4 8	3388	25 26 38	3340	26 50 3	3298	28 14 17	3259
	Venus	E.	50 29 10	3459	49 8 0	3450	47 46 40	3441	46 25 10	3431
	Regulus	E.	57 27 1	3009	55 56 59	3001	54 26 47	2992	52 56 24	2983
	Sun	E.	85 48 53	3383	84 26 17	3373	83 3 30	3364	81 40 32	3354
20	α Arietis	W.	66 50 48	2940	68 22 16	2928	69 53 59	2916	71 25 58	2903
	Aldebaran	W.	35 25 39	3109	36 53 38	3084	38 22 7	3060	39 51 5	3037
	Venus	E.	39 34 39	3375	38 11 54	3362	36 48 54	3350	35 25 40	3336
	Regulus	E.	45 21 27	2931	43 49 47	2920	42 17 53	2908	40 45 44	2896
	Sun	E.	74 42 41	3298	73 18 27	3284	71 53 57	3271	70 29 12	3258
21	α Arietis	W.	79 10 9	2833	80 43 54	2818	82 17 58	2803	83 52 22	2788
	Aldebaran	W.	47 22 47	2931	48 54 26	2912	50 26 30	2892	51 58 59	2873
	Sun	E.	63 21 21	3186	61 54 55	3170	60 28 10	3155	59 1 7	3138
22	α Arietis	W.	91 49 25	2709	93 25 53	2692	95 2 43	2676	96 39 55	2660
	Aldebaran	W.	59 47 39	2776	61 22 38	2758	62 58 1	2738	64 33 50	2720
	Sun	E.	51 40 57	3057	50 11 55	3040	48 42 32	3023	47 12 48	3007
23	Aldebaran	W.	72 39 3	2629	74 17 19	2610	75 56 0	2593	77 35 5	2575
	Pollux	W.	30 19 11	2637	31 57 16	2612	33 35 54	2591	35 15 2	2569
	Sun	E.	39 38 59	2924	38 7 11	2909	36 35 4	2894	35 2 37	2879
28	Sun	W.	26 44 49	2489	28 26 17	2482	30 7 55	2477	31 49 41	2473
	Antares	E.	36 17 45	2129	34 27 30	2128	32 37 13	2126	30 46 56	2128
	α Aquilæ	E.	91 6 25	2732	89 30 27	2732	87 54 29	2732	86 18 32	2735
29	Sun	W.	40 19 22	2469	42 1 19	2470	43 43 14	2472	45 25 6	2476
	α Aquilæ	E.	78 20 26	2774	76 45 24	2787	75 10 39	2801	73 36 13	2818
	Fomalhaut	E.	102 47 41	2530	101 7 10	2528	99 26 36	2528	97 46 2	2529
30	Sun	W.	53 53 2	2499	55 34 16	2506	57 15 21	2512	58 56 17	2520
	α Aquilæ	E.	65 50 19	2933	64 18 42	2962	62 47 42	2996	61 17 24	3031
	Fomalhaut	E.	89 24 2	2551	87 43 59	2553	86 4 7	2556	84 24 26	2576
	α Pegasi	E.	111 2 11	2361	109 17 40	2363	107 33 12	2366	105 48 49	2371

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Day of the Month.	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Fomalhaut	W.	101 24 41	[illegible]	102 45 49	[illegible]	104 6 55	[illegible]	105 27 59	[illegible]
	α Pegasi	W.	80 13 46	[illegible]	81 39 14	[illegible]	83 4 46	[illegible]	84 30 24	[illegible]
	α Arietis	W.	37 3 22	3110	38 31 20	[illegible]	39 59 25	[illegible]	41 27 37	[illegible]
	Pollux	E.	38 36 1	[illegible]	37 8 18	[illegible]	35 40 36	[illegible]	34 12 55	[illegible]
	Venus	E.	66 33 35	[illegible]	65 13 41	[illegible]	63 53 43	[illegible]	62 33 42	3317
	Regulus	E.	75 17 32	[illegible]	73 45 48	[illegible]	72 20 1	[illegible]	70 51 10	[illegible]
	Sun	E.	102 10 12	[illegible]	100 48 55	[illegible]	99 27 34	[illegible]	98 6 9	[illegible]
18	α Pegasi	W.	91 40 0	[illegible]	93 6 15	[illegible]	94 32 37	[illegible]	95 59 7	[illegible]
	α Arietis	W.	48 50 30	[illegible]	50 19 30	[illegible]	51 48 39	[illegible]	53 17 59	[illegible]
	Pollux	E.	26 54 59	[illegible]	25 27 35	[illegible]	24 0 18	[illegible]	22 33 10	[illegible]
	Venus	E.	55 52 21	[illegible]	54 31 45	[illegible]	53 11 2	[illegible]	51 50 10	[illegible]
	Regulus	E.	63 25 37	[illegible]	61 56 11	[illegible]	60 26 36	[illegible]	58 56 53	[illegible]
	Sun	E.	91 17 46	[illegible]	89 55 45	[illegible]	88 33 37	[illegible]	87 11 20	[illegible]
19	α Pegasi	W.	103 13 41	[illegible]	104 41 3	[illegible]	106 8 34	[illegible]	107 36 15	[illegible]
	α Arietis	W.	60 47 24	[illegible]	62 17 54	[illegible]	63 48 38	[illegible]	65 19 36	[illegible]
	Aldebaran	W.	29 37 17	[illegible]	31 4 55	[illegible]	32 31 17	[illegible]	33 58 11	[illegible]
	Venus	E.	45 3 25	[illegible]	43 41 35	[illegible]	42 19 29	[illegible]	40 57 11	[illegible]
	Regulus	E.	51 25 50	[illegible]	49 55 4	[illegible]	48 24 5	[illegible]	46 52 53	[illegible]
	Sun	E.	80 17 21	[illegible]	78 54 2	[illegible]	77 30 28	[illegible]	76 6 41	[illegible]
20	α Arietis	W.	72 58 13	[illegible]	74 30 45	[illegible]	76 3 35	[illegible]	77 36 43	[illegible]
	Aldebaran	W.	41 20 32	[illegible]	42 50 26	[illegible]	44 20 47	[illegible]	45 51 34	[illegible]
	Venus	E.	34 2 10	[illegible]	32 38 25	[illegible]	31 14 25	[illegible]	29 50 9	[illegible]
	Regulus	E.	39 13 20	[illegible]	37 40 40	[illegible]	36 7 44	[illegible]	34 34 31	[illegible]
	Sun	E.	69 4 11	[illegible]	67 38 54	[illegible]	66 13 20	[illegible]	64 47 29	[illegible]
21	α Arietis	W.	85 27 5	[illegible]	87 2 9	[illegible]	88 37 33	[illegible]	90 13 18	[illegible]
	Aldebaran	W.	53 31 52	[illegible]	55 5 12	[illegible]	56 38 56	[illegible]	58 13 5	[illegible]
	Sun	E.	57 33 44	[illegible]	56 6 2	[illegible]	54 38 0	[illegible]	53 9 39	[illegible]
22	α Arietis	W.	98 17 29	[illegible]	99 55 25	[illegible]	101 33 44	[illegible]	103 12 25	[illegible]
	Aldebaran	W.	66 10 3	[illegible]	67 46 41	[illegible]	69 23 44	[illegible]	71 1 11	[illegible]
	Sun	E.	45 42 44	[illegible]	44 12 19	[illegible]	42 41 33	[illegible]	41 10 26	[illegible]
23	Aldebaran	W.	79 14 34	[illegible]	80 54 27	[illegible]	82 34 43	[illegible]	84 15 23	[illegible]
	Pollux	W.	36 54 32	[illegible]	38 34 40	[illegible]	40 15 21	[illegible]	41 56 23	[illegible]
	Sun	E.	33 29 51	[illegible]	31 56 42	[illegible]	30 23 25	[illegible]	28 49 46	[illegible]
28	Sun	W.	33 31 32	[illegible]	35 13 27	[illegible]	36 55 25	[illegible]	38 37 24	[illegible]
	Antares	E.	28 56 19	[illegible]	27 6 24	[illegible]	25 16 11	[illegible]	23 26 1	[illegible]
	α Aquilae	E.	84 42 33	[illegible]	83 6 52	[illegible]	81 31 12	[illegible]	79 55 43	[illegible]
29	Sun	W.	47 6 5	[illegible]	48 48 55	[illegible]	50 31 11	[illegible]	52 11 40	[illegible]
	α Aquilae	E.	72 2 [illegible]	[illegible]	70 [illegible]	[illegible]	68 55 15	[illegible]	67 22 31	[illegible]
	Fomalhaut	E.	96 5 2	[illegible]	94 24 57	[illegible]	92 44 33	[illegible]	91 4 14	[illegible]
30	Sun	W.	[illegible]	[illegible]	62 17 3	[illegible]	64 [illegible] 2	[illegible]	65 38 15	[illegible]
	α Aquilae	E.	[illegible]	[illegible]	58 19 4	[illegible]	56 51 10	[illegible]	55 24 11	[illegible]
	Fomalhaut	E.	83 44 55	[illegible]	81 5 45	[illegible]	79 26 47	[illegible]	77 45 6	[illegible]
	α Pegasi	E.	104 4 32	[illegible]	102 20 22	[illegible]	100 36 19	[illegible]	98 52 24	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Frid.	1	12 31 26.03	9.066	S. 3 23 41.6	−58.22	16 1.56	64.39	10 26.98	0.790
Sat.	2	12 35 3.72	9.078	3 46 57.8	58.12	16 1.84	64.44	10 45.80	0.778
SUN.	3	12 38 41.70	9.090	4 10 11.2	58.00	16 2.12	64.49	11 4.31	0.765
Mon.	4	12 42 20.02	9.104	4 33 21.6	−57.86	16 2.41	64.54	11 22.50	0.751
Tues.	5	12 45 58.68	9.118	4 56 28.5	57.71	16 2.69	64.59	11 40.34	0.736
Wed.	6	12 49 37.70	9.134	5 19 31.7	57.55	16 2.97	64.65	11 57.83	0.720
Thur.	7	12 53 17.10	9.150	5 42 30.6	−57.37	16 3.25	64.71	12 14.93	0.704
Frid.	8	12 56 56.92	9.168	6 5 25.2	57.17	16 3.53	64.77	12 31.62	0.686
Sat.	9	13 0 37.16	9.186	6 28 14.9	56.96	16 3.81	64.84	12 47.89	0.668
SUN.	10	13 4 17.86	9.206	6 50 59.4	−56.74	16 4.09	64.91	13 3.70	0.649
Mon.	11	13 7 59.03	9.226	7 13 38.5	56.51	16 4.37	64.98	13 19.04	0.629
Tues.	12	13 11 40.70	9.247	7 36 11.7	56.26	16 4.64	65.05	13 33.88	0.608
Wed.	13	13 15 22.89	9.269	7 58 38.7	−55.99	16 4.91	65.13	13 48.21	0.586
Thur.	14	13 19 5.62	9.291	8 20 59.1	55.71	16 5.18	65.21	14 1.99	0.563
Frid.	15	13 22 48.92	9.316	8 43 12.6	55.41	16 5.45	65.29	14 15.22	0.539
Sat.	16	13 26 32.80	9.341	9 5 18.8	−55.09	16 5.72	65.37	14 27.86	0.514
SUN.	17	13 30 17.28	9.366	9 27 17.3	54.77	16 5.99	65.46	14 39.90	0.489
Mon.	18	13 34 2.38	9.393	9 49 7.7	54.43	16 6.25	65.55	14 51.32	0.462
Tues.	19	13 37 48.13	9.420	10 10 49.7	−54.07	16 6.52	65.64	15 2.09	0.435
Wed.	20	13 41 34.53	9.448	10 32 22.8	53.69	16 6.78	65.73	15 12.22	0.408
Thur.	21	13 45 21.61	9.476	10 53 46.6	53.29	16 7.04	65.83	15 21.67	0.380
Frid.	22	13 49 9.37	9.505	11 15 0.8	−52.88	16 7.30	65.93	15 30.44	0.351
Sat.	23	13 52 57.83	9.534	11 36 4.8	52.45	16 7.56	66.03	15 38.52	0.322
SUN.	24	13 56 47.00	9.564	11 56 58.3	52.00	16 7.82	66.13	15 45.88	0.292
Mon.	25	14 0 36.89	9.594	12 17 40.8	−51.54	16 8.09	66.24	15 52.52	0.262
Tues.	26	14 4 27.51	9.625	12 38 12.0	51.06	16 8.35	66.34	15 58.44	0.231
Wed.	27	14 8 18.87	9.656	12 58 31.3	50.55	16 8.61	66.45	16 3.62	0.200
Thur.	28	14 12 10.98	9.687	13 18 38.5	−50.03	16 8.87	66.56	16 8.06	0.169
Frid.	29	14 16 3.84	9.719	13 38 33.0	49.50	16 9.12	66.67	16 11.74	0.138
Sat.	30	14 19 57.47	9.751	13 58 14.4	48.95	16 9.38	66.78	16 14.66	0.106
SUN.	31	14 23 51.87	9.783	14 17 42.4	48.38	16 9.64	66.89	16 16.81	0.073
Mon.	32	14 27 47.05	9.815	S. 14 36 56.6	−47.79	16 9.89	67.00	16 18.18	0.041

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.18 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Frid.	1	12 31 27.61	9.066	S. 3 23 51.8	−58.23	10 27.12	0.790	12 41 54.73
Sat	2	12 35 5.34	9.07[illegible]	3 47 8.3	58.13	10 45.94	0.778	12 45 51.28
SUN.	3	12 38 43.38	9.092	4 10 22.0	58.01	11 4.45	0.765	12 49 47.83
Mon.	4	12 42 21.75	9.106	4 33 32.6	−57.87	11 22.64	0.751	12 53 44.39
Tues.	5	12 46 0.45	9.120	4 56 3[illegible].8	57.72	11 40.49	0.736	12 57 40.94
Wed	6	12 49 39.52	9.136	5 19 43.2	57.55	11 57.97	0.720	13 1 37.49
Thur.	7	12 53 18.97	9.152	5 42 42.4	−57.37	12 15.07	0.704	13 5 34.05
Frid.	8	12 56 58.[illegible]	9.17[illegible]	6 5 37.2	57.18	12 31.76	0.687	13 9 30.60
Sat.	9	13 0 39.13	9.188	6 28 27.1	56.97	12 48.03	0.668	13 13 27.15
SUN.	10	13 4 19.[illegible]	9.208	6 51 11.8	−56.75	13 3.84	0.649	13 17 23.71
Mon.	11	13 8 1.08	9.228	7 13 51.1	56.51	13 19.18	0.629	13 21 20.26
Tues.	12	13 11 42.[illegible]	9.249	7 36 24.4	56.26	13 34.02	0.608	13 25 16.82
Wed	13	13 15 25.03	9.271	7 58 51.6	−55.99	13 48.34	0.585	13 29 13.37
Thur	14	13 19 7.[illegible]	9.294	8 21 12.2	55.71	14 2.12	0.562	13 33 9.92
Frid.	15	13 22 51.13	9.318	8 43 25.[illegible]	55.42	14 15.35	0.539	13 37 6.48
Sat.	16	13 26 35.05	9.343	9 5 32.1	−55.11	14 27.98	0.514	13 41 3.03
SUN.	17	13 30 19.57	9.368	9 27 3[illegible].7	54.77	14 40.02	0.488	13 44 59.59
Mon.	18	13 34 4.71	9.394	9 49 21.2	54.42	14 51.43	0.460	13 48 56.14
Tues.	19	13 37 50.49	9.421	10 11 3.3	−54.07	15 2.20	0.435	13 52 52.69
Wed.	20	13 41 36.9[illegible]	9.449	10 32 36.4	53.69	15 12.32	0.407	13 56 49.25
Thur.	21	13 45 24.[illegible]	9.477	10 54 0.3	53.29	15 21.76	0.379	14 0 45.80
Frid.	22	13 49 11.[illegible]	[illegible]	11 15 14.4	−52.88	15 30.53	0.350	14 4 42.36
Sat.	23	13 53 0.31	9.535	11 36 [illegible]	52.45	15 38.60	0.321	14 8 38.91
SUN.	24	13 56 [illegible].51	[illegible]	11 57 11.9	52.00	15 45.95	0.291	14 12 35.46
Mon	25	14 0 [illegible]	[illegible]	12 17 54.5	51.53	15 52.59	0.261	14 16 32.02
Tues	26	14 4 [illegible]	[illegible]	12 [illegible] 25.6	51.05	15 [illegible]	0.231	14 20 28.57
Wed	27	14 8 21.45	[illegible]	12 58 44.9	50.55	16 3.[illegible]	0.200	14 24 25.13
Thur.	28	14 12 13.58	[illegible]	13 18 51.9	−50.03	16 8.10	0.169	14 28 21.68
Frid	29	14 16 6.46	[illegible]	13 38 40.4	49.50	16 11.7[illegible]	0.137	14 32 18.24
Sat.	30	14 20 0.11	[illegible]	13 58 27.7	48.95	16 14.[illegible]	0.1[illegible]5	14 36 14.79
SUN.	31	14 23 54.52	[illegible]	14 17 55.6	48.37	16 16.83	0.073	14 40 11.35
Mon	32	14 27 [illegible]	[illegible]	S. 14 37 9.5	[illegible]	16 18.19	[illegible]	14 44 7.91

Note. [illegible] mean noon.
The [illegible] are [illegible]

Diff. for 1 Hour, + [illegible] (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″				h m s
1	274	188 34 8.4	33 16.7	147.72	− 0.33	0.0002002	−53.1	11 16 14.18
2	275	189 33 14.6	32 22.8	147.79	0.22	0.0000726	53.2	11 12 18.28
3	276	190 32 22.5	31 30.5	147.86	− 0.11	9.9999449	53.3	11 8 22.37
4	277	191 31 32.2	30 40.1	147.93	+ 0.02	9.9998169	−53.3	11 4 26.46
5	278	192 30 43.6	29 51.4	148.01	0.16	9.9996893	53.2	11 0 30.56
6	279	193 29 56.8	29 4.5	148.08	0.29	9.9995617	53.1	10 56 34.65
7	280	194 29 11.8	28 19.4	148.16	+ 0.41	9.9994345	−52.9	10 52 38.74
8	281	195 28 28.7	27 36.2	148.24	0.51	9.9993079	52.6	10 48 42.83
9	282	196 27 47.4	26 54.8	148.32	0.60	9.9991820	52.3	10 44 46.92
10	283	197 27 8.1	26 15.4	148.40	+ 0.66	9.9990568	−52.0	10 40 51.02
11	284	198 26 30.8	25 38.0	148.49	0.69	9.9989324	51.6	10 36 55.11
12	285	199 25 55.5	25 2.6	148.57	0.69	9.9988089	51.2	10 32 59.20
13	286	200 25 22.4	24 29.4	148.66	+ 0.67	9.9986862	−50.9	10 29 3.29
14	287	201 24 51.4	23 58.2	148.75	0.61	9.9985645	50.6	10 25 7.38
15	288	202 24 22.6	23 29.3	148.85	0.52	9.9984435	50.3	10 21 11.48
16	289	203 23 56.1	23 2.7	148.94	+ 0.41	9.9983231	−50.0	10 17 15.57
17	290	204 23 31.9	22 38.4	149.04	0.29	9.9982036	49.7	10 13 19.66
18	291	205 23 10.0	22 16.4	149.13	0.16	9.9980846	49.4	10 9 23.75
19	292	206 22 50.4	21 56.6	149.23	+ 0.04	9.9979661	−49.2	10 5 27.84
20	293	207 22 33.0	21 39.1	149.32	− 0.09	9.9978482	49.1	10 1 31.94
21	294	208 22 17.9	21 23.9	149.42	0.21	9.9977303	49.0	9 57 36.03
22	295	209 22 5.0	21 10.9	149.51	− 0.30	9.9976128	−48.9	9 53 40.12
23	296	210 21 54.3	21 0.0	149.60	0.38	9.9974955	48.8	9 49 44.21
24	297	211 21 45.7	20 51.3	149.69	0.42	9.9973784	48.7	9 45 48.30
25	298	212 21 39.2	20 44.6	149.77	− 0.44	9.9972614	−48.6	9 41 52.39
26	299	213 21 34.5	20 39.9	149.85	0.42	9.9971445	48.5	9 37 56.48
27	300	214 21 31.8	20 37.1	149.93	0.37	9.9970279	48.4	9 34 0.57
28	301	215 21 31.0	20 36.1	150.00	− 0.30	9.9969115	−48.3	9 30 4.67
29	302	216 21 31.8	20 36.8	150.07	0.21	9.9967956	48.2	9 26 8.76
30	303	217 21 34.3	20 39.2	150.14	− 0.10	9.9966801	48.0	9 22 12.85
31	304	218 21 38.5	20 43.2	150.21	+ 0.03	9.9965651	47.7	9 18 16.94
32	305	219 21 44.4	20 49.0	150.27	+ 0.16	9.9964509	−47.4	9 14 21.03

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ′ to the mean equinox of January 0d.0.

Diff. for 1 Hour, −9s.8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMIDIAMETER. Noon.	SEMIDIAMETER. Midnight.	HORIZONTAL PARALLAX. Noon.	Diff. for 1 Hour.	HORIZONTAL PARALLAX. Midnight.	Diff. for 1 Hour.	UPPER TRANSIT. Meridian of Greenwich.	Diff. for 1 Hour.	AGE. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	16 17.1	16 13.4	59 39.5	−1.06	59 25.9	−1.18	4 25.8	2.61	4.9
2	16 9.4	16 5.1	59 11.1	1.27	58 55.3	1.33	5 27.7	2.53	5.9
3	16 0.6	15 56.0	58 38.8	1.39	58 22.0	1.40	6 26.7	2.38	6.9
4	15 51.4	15 46.8	58 5.1	−1.41	57 48.2	−1.40	7 21.6	2.19	7.9
5	15 42.3	15 37.8	57 31.5	1.38	57 15.0	1.36	8 12.2	2.03	8.9
6	15 33.4	15 29.0	56 58.8	1.33	56 43.0	1.30	8 59.2	1.90	9.9
7	15 24.9	15 20.8	56 27.6	−1.27	56 12.6	−1.23	9 43.6	1.81	10.9
8	15 16.8	15 13.0	55 58.0	1.20	55 43.9	1.15	10 26.5	1.77	11.9
9	15 9.3	15 5.7	55 30.4	1.10	55 17.4	1.06	11 8.9	1.77	12.9
10	15 2.4	14 59.2	55 5.0	−1.00	54 53.4	−0.93	11 51.9	1.81	13.9
11	14 56.3	14 53.6	54 42.7	0.85	54 32.9	0.77	12 36.1	1.88	14.9
12	14 51.3	14 49.3	54 24.3	0.66	54 17.0	0.55	13 22.1	1.95	15.9
13	14 47.7	14 46.5	54 11.0	−0.43	54 6.6	−0.20	14 9.9	2.03	16.9
14	14 45.8	14 45.6	54 4.0	−0.14	54 3.3	+0.03	14 59.4	2.09	17.9
15	14 45.9	14 46.9	54 4.7	+0.20	54 8.2	0.39	15 49.8	2.11	18.9
16	14 48.5	14 50.7	54 14.0	+0.59	54 22.3	+0.79	16 40.3	2.10	19.9
17	14 53.6	14 57.2	54 32.9	0.99	54 46.1	1.20	17 30.2	2.05	20.9
18	15 1.5	15 6.4	55 1.8	1.41	55 19.9	1.60	18 18.8	2.00	21.9
19	15 12.0	15 18.1	55 40.2	+1.79	56 2.8	+1.96	19 6.2	1.95	22.9
20	15 24.8	15 31.9	56 27.3	2.11	56 53.4	2.23	19 52.8	1.93	23.9
21	15 39.3	15 47.0	57 20.7	2.31	57 48.9	2.36	20 39.2	1.95	24.9
22	15 54.7	16 2.4	58 17.3	+2.36	58 45.5	+2.30	21 26.7	2.01	25.9
23	16 9.8	16 16.7	59 12.6	2.19	59 38.1	2.03	22 16.3	2.13	26.9
24	16 23.0	16 28.5	60 1.3	1.81	60 21.5	1.54	23 9.2	2.29	27.9
25	16 33.1	16 36.5	60 38.2	+1.22	60 50.7	+0.86	6		28.9
26	16 38.7	16 37.7	60 58.9	+0.50	61 2.6	+0.11	0 6.4	2.48	0.5
27	16 36.5	16 38.0	61 1.6	0.27	60 56.1	−0.63	1 7.9	2.64	1.5
28	16 35.3	16 31.7	60 46.5	0.96	60 33.1	−1.25	2 12.3	2.71	2.5
29	16 27.2	16 22.0	60 11.6	1.40	59 57.4	1.68	3 17.1	2.66	3.5
30	16 16.2	16 10.1	59 36.2	1.83	59 13.6	1.92	4 19.2	2.50	4.5
31	16 3.7	15 57.2	58 50.1	1.77	58 26.3	1.98	5 16.9	2.29	5.5
32	15 50.7	15 44.4	58 2.5	−1.96	57 39.2	−1.91	6 9.4	2.09	6.5

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 1.					**SUNDAY 3.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	16 56 36.61	2.6695	S.26 26 32.7	1.791	0	19 1 38.08	2.4918	S.24 25 12.4	6.522
1	16 59 16.77	2.6690	26 28 14.5	1.605	1	19 4 7.40	2.4855	24 18 36.7	6.668
2	17 1 56.90	2.6684	26 29 45.1	1.416	2	19 6 36.34	2.4792	24 11 52.2	6.815
3	17 4 36.98	2.6677	26 31 4.4	1.228	3	19 9 4.90	2.4728	24 4 58.9	6.959
4	17 7 17.01	2.6667	26 32 12.5	1.042	4	19 11 33.08	2.4664	23 57 57.1	7.102
5	17 9 56.98	2.6657	26 33 9.5	0.856	5	19 14 0.87	2.4599	23 50 46.7	7.243
6	17 12 36.89	2.6645	26 33 55.2	0.668	6	19 16 28.27	2.4533	23 43 27.9	7.383
7	17 15 16.72	2.6632	26 34 29.7	0.482	7	19 18 55.27	2.4468	23 36 0.7	7.522
8	17 17 56.47	2.6617	26 34 53.1	0.297	8	19 21 21.88	2.4403	23 28 25.3	7.658
9	17 20 36.12	2.6599	26 35 5.3	− 0.110	9	19 23 48.10	2.4336	23 20 41.7	7.794
10	17 23 15.66	2.6581	26 35 6.3	+ 0.075	10	19 26 13.91	2.4268	23 12 50.0	7.928
11	17 25 55.09	2.6562	26 34 56.3	0.259	11	19 28 39.32	2.4202	23 4 50.3	8.062
12	17 28 34.40	2.6540	26 34 35.2	0.444	12	19 31 4.33	2.4134	22 56 42.6	8.193
13	17 31 13.57	2.6517	26 34 3.0	0.628	13	19 33 28.93	2.4067	22 48 27.1	8.322
14	17 33 52.60	2.6493	26 33 19.8	0.812	14	19 35 53.13	2.3999	22 40 3.9	8.450
15	17 36 31.48	2.6466	26 32 25.6	0.995	15	19 38 16.92	2.3932	22 31 33.1	8.577
16	17 39 10.19	2.6438	26 31 20.4	1.178	16	19 40 40.31	2.3863	22 22 54.7	8.702
17	17 41 48.74	2.6410	26 30 4.3	1.359	17	19 43 3.28	2.3794	22 14 8.9	8.825
18	17 44 27.11	2.6380	26 28 37.3	1.540	18	19 45 25.84	2.3727	22 5 15.7	8.947
19	17 47 5.30	2.6348	26 26 59.5	1.720	19	19 47 48.00	2.3658	21 56 15.2	9.068
20	17 49 43.29	2.6315	26 25 10.9	1.900	20	19 50 9.74	2.3589	21 47 7.5	9.188
21	17 52 21.08	2.6280	26 23 11.5	2.079	21	19 52 31.07	2.3521	21 37 52.7	9.305
22	17 54 58.65	2.6244	26 21 1.4	2.257	22	19 54 51.99	2.3452	21 28 30.9	9.421
23	17 57 36.01	2.6207	S.26 18 40.7	2.434	23	19 57 12.49	2.3383	S.21 19 2.2	9.536
	SATURDAY 2.					**MONDAY 4.**			
0	18 0 13.14	2.6168	S.26 16 9.3	2.611	0	19 59 32.58	2.3314	S.21 9 26.6	9.649
1	18 2 50.03	2.6128	26 13 27.4	2.786	1	20 1 52.26	2.3247	20 59 44.3	9.760
2	18 5 26.68	2.6087	26 10 35.0	2.961	2	20 4 11.54	2.3178	20 49 55.4	9.870
3	18 8 3.08	2.6045	26 7 32.1	3.135	3	20 6 30.40	2.3109	20 39 59.9	9.978
4	18 10 39.22	2.6002	26 4 18.8	3.307	4	20 8 48.85	2.3041	20 29 58.0	10.085
5	18 13 15.10	2.5957	26 0 55.2	3.478	5	20 11 6.89	2.2973	20 19 49.7	10.190
6	18 15 50.71	2.5912	25 57 21.4	3.649	6	20 13 24.53	2.2906	20 9 35.2	10.294
7	18 18 26.04	2.5864	25 53 37.3	3.819	7	20 15 41.76	2.2838	19 59 14.4	10.397
8	18 21 1.08	2.5816	25 49 43.1	3.988	8	20 17 58.58	2.2770	19 48 47.6	10.498
9	18 23 35.83	2.5767	25 45 38.8	4.155	9	20 20 15.00	2.2703	19 38 14.7	10.597
10	18 26 10.28	2.5717	25 41 24.5	4.322	10	20 22 31.02	2.2636	19 27 35.9	10.695
11	18 28 44.43	2.5667	25 37 0.2	4.488	11	20 24 46.63	2.2569	19 16 51.3	10.792
12	18 31 18.28	2.5614	25 32 26.0	4.652	12	20 27 1.85	2.2503	19 6 0.9	10.887
13	18 33 51.80	2.5559	25 27 42.0	4.814	13	20 29 16.67	2.2437	18 55 4.9	10.980
14	18 36 24.99	2.5505	25 22 48.3	4.976	14	20 31 31.09	2.2371	18 44 3.3	11.072
15	18 38 57.86	2.5451	25 17 44.9	5.136	15	20 33 45.12	2.2306	18 32 56.3	11.162
16	18 41 30.40	2.5394	25 12 32.0	5.295	16	20 35 58.76	2.2241	18 21 43.9	11.251
17	18 44 2.59	2.5337	25 7 9.5	5.453	17	20 38 12.01	2.2176	18 10 26.2	11.338
18	18 46 34.44	2.5280	25 1 37.6	5.610	18	20 40 24.87	2.2112	17 59 3.3	11.424
19	18 49 5.95	2.5222	24 55 56.3	5.765	19	20 42 37.35	2.2048	17 47 35.3	11.508
20	18 51 37.10	2.5160	24 50 5.8	5.918	20	20 44 49.44	2.1984	17 36 2.3	11.590
21	18 54 7.89	2.5102	24 44 6.1	6.072	21	20 47 1.16	2.1922	17 24 24.3	11.674
22	18 56 38.32	2.5041	24 37 57.2	6.223	22	20 49 12.50	2.1858	17 12 41.4	11.754
23	18 59 8.38	2.4980	24 31 39.3	6.373	23	20 51 23.46	2.1796	17 0 53.8	11.833
24	19 1 38.08	2.4918	S.24 25 12.4	6.522	24	20 53 34.05	2.1734	S.16 49 1.5	11.910

GREENWICH MEAN TIME

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 5.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	20 53 34.05	[illegible]	S.16 49 1.5	[illegible]
1	20 55 44.27	[illegible]	16 37 4.6	[illegible]
2	20 57 54.13	[illegible]	16 25 3.2	[illegible]
3	21 0 3.62	[illegible]	16 12 57.4	[illegible]
4	21 2 12.75	[illegible]	16 0 47.2	[illegible]
5	21 4 21.53	[illegible]	15 48 32.8	[illegible]
6	21 6 29.95	[illegible]	15 36 14.1	[illegible]
7	21 8 38.02	[illegible]	15 23 51.4	[illegible]
8	21 10 45.75	[illegible]	15 11 24.7	[illegible]
9	21 12 53.13	[illegible]	14 58 54.0	[illegible]
10	21 15 0.17	[illegible]	14 46 19.5	[illegible]
11	21 17 6.87	[illegible]	14 33 41.2	[illegible]
12	21 19 13.25	[illegible]	14 20 59.2	[illegible]
13	21 21 19.30	[illegible]	14 8 13.6	[illegible]
14	21 23 25.01	[illegible]	13 55 24.5	[illegible]
15	21 25 30.41	[illegible]	13 42 32.0	[illegible]
16	21 27 35.49	[illegible]	13 29 36.1	[illegible]
17	21 29 40.25	[illegible]	13 16 36.8	[illegible]
18	21 31 44.70	[illegible]	13 3 34.4	[illegible]
19	21 33 48.85	[illegible]	12 50 [illegible]	[illegible]
20	21 35 52.69	[illegible]	12 37 20.1	[illegible]
21	21 37 56.24	[illegible]	12 24 8.5	[illegible]
22	21 39 59.49	[illegible]	12 10 54.0	[illegible]
23	21 42 2.44	[illegible]	S.11 57 36.6	[illegible]

WEDNESDAY 6.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	21 44 5.11	[illegible]	S.11 44 16.4	[illegible]
1	21 46 7.50	[illegible]	11 30 [illegible]	[illegible]
2	21 48 9.61	[illegible]	11 17 28.2	[illegible]
3	21 50 11.44	[illegible]	11 4 0.2	[illegible]
4	21 52 13.00	[illegible]	10 50 29.7	[illegible]
5	21 54 14.[illegible]	[illegible]	10 36 [illegible]	[illegible]
6	21 56 15.33	[illegible]	10 23 21.[illegible]	[illegible]
7	21 58 16.11	[illegible]	10 9 44.4	[illegible]
8	22 0 [illegible]	[illegible]	9 56 4.8	[illegible]
9	22 2 [illegible]	[illegible]	9 42 [illegible]	[illegible]
10	22 4 [illegible]	[illegible]	9 28 [illegible]	[illegible]
11	22 6 [illegible]	[illegible]	9 14 [illegible]	[illegible]
12	22 8 [illegible]	[illegible]	9 1 [illegible]	[illegible]
13	22 10 15.55	[illegible]	8 47 [illegible]	[illegible]
14	22 12 [illegible]	[illegible]	[illegible]	[illegible]
15	22 14 [illegible]	[illegible]	[illegible]	[illegible]
16	22 16 [illegible]	[illegible]	[illegible]	[illegible]
17	22 18 [illegible]	[illegible]	[illegible]	[illegible]
18	22 20 [illegible]	[illegible]	7 [illegible] 44	[illegible]
19	22 22 [illegible]	[illegible]	7 23 [illegible]	[illegible]
20	22 24 4.55	[illegible]	[illegible]	[illegible]
21	22 26 [illegible]	[illegible]	6 55 44.1	[illegible]
22	[illegible]	[illegible]	6 41 4[illegible]	[illegible]
23	[illegible]	[illegible]	6 2[illegible]	[illegible]
24	[illegible]	[illegible]	S. 6 1[illegible]	[illegible]

THURSDAY 7.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	22 31 53.77	[illegible]	S. 6 13 32.4	[illegible]
1	22 33 50.61	[illegible]	5 59 26.4	[illegible]
2	22 35 47.28	[illegible]	5 45 19.4	[illegible]
3	22 37 43.77	[illegible]	5 31 11.5	[illegible]
4	22 39 40.09	[illegible]	5 17 2.8	[illegible]
5	22 41 36.25	[illegible]	5 2 53.4	[illegible]
6	22 43 32.24	[illegible]	4 48 43.2	[illegible]
7	22 45 28.08	[illegible]	4 34 32.4	[illegible]
8	22 47 23.77	[illegible]	4 20 21.0	[illegible]
9	22 49 19.30	[illegible]	4 6 9.0	[illegible]
10	22 51 14.70	[illegible]	3 51 56.6	[illegible]
11	22 53 9.95	[illegible]	3 37 43.9	[illegible]
12	22 55 5.06	[illegible]	3 23 30.8	[illegible]
13	22 57 0.05	[illegible]	3 9 17.5	[illegible]
14	22 58 54.91	[illegible]	2 55 3.9	[illegible]
15	23 0 49.64	[illegible]	2 40 50.2	[illegible]
16	23 2 44.26	[illegible]	2 26 36.4	[illegible]
17	23 4 38.76	[illegible]	2 12 22.5	[illegible]
18	23 6 33.15	[illegible]	1 58 8.7	[illegible]
19	23 8 27.44	[illegible]	1 43 55.0	[illegible]
20	23 10 21.62	[illegible]	1 29 41.4	[illegible]
21	23 12 15.70	[illegible]	1 15 28.0	[illegible]
22	23 14 9.69	[illegible]	1 1 14.9	[illegible]
23	23 16 3.59	[illegible]	S. 0 47 2.1	[illegible]

FRIDAY 8.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	23 17 57.40	[illegible]	S. 0 32 49.7	[illegible]
1	23 19 51.13	[illegible]	0 18 37.7	[illegible]
2	23 21 44.79	[illegible]	S. 0 4 26.3	[illegible]
3	23 23 38.17	[illegible]	N. 0 9 44.7	[illegible]
4	23 25 31.88	[illegible]	0 23 55.0	[illegible]
5	23 27 25.32	[illegible]	0 38 4.6	[illegible]
6	23 29 18.70	[illegible]	0 52 13.5	[illegible]
7	23 31 12.03	[illegible]	1 6 21.7	[illegible]
8	23 33 5.30	[illegible]	1 20 29.0	[illegible]
9	23 34 58.52	[illegible]	1 34 35.4	[illegible]
10	23 36 51.70	[illegible]	1 48 4[illegible]	[illegible]
11	23 38 44.83	[illegible]	2 2 45.2	[illegible]
12	23 40 37.92	[illegible]	2 16 48.6	[illegible]
13	23 42 30.98	[illegible]	2 30 5[illegible]	[illegible]
14	23 44 24.01	[illegible]	2 44 52.0	[illegible]
15	23 46 17.01	[illegible]	2 58 51.[illegible]	[illegible]
16	23 48 9.[illegible]	[illegible]	3 12 50.5	[illegible]
17	23 50 2.[illegible]	[illegible]	3 26 47.8	[illegible]
18	23 51 55.[illegible]	[illegible]	3 40 43.7	[illegible]
19	23 53 48.[illegible]	[illegible]	3 54 38.1	[illegible]
20	23 55 41.[illegible]	[illegible]	4 8 31.0	[illegible]
21	23 57 34.[illegible]	[illegible]	4 22 2[illegible].4	[illegible]
22	23 59 2[illegible]	[illegible]	4 36 13.2	[illegible]
23	0 1 20.5[illegible]	[illegible]	4 50 [illegible]	[illegible]
24	0 3 13.4	[illegible]	N. 5 3 4[illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 9.					**MONDAY 11.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	0 3 13.43	1.8822	N. 5 3 46.8	13.759	0	1 34 45.74	1.9503	N.15 14 27.6	11.362
1	0 5 6.37	1.8824	5 17 31.5	13.729	1	1 36 42.83	1.9528	15 25 47.3	11.292
2	0 6 59.32	1.8827	5 31 14.3	13.698	2	1 38 40.07	1.9553	15 37 2.7	11.222
3	0 8 52.29	1.8830	5 44 55.3	13.667	3	1 40 37.47	1.9578	15 48 13.9	11.150
4	0 10 45.28	1.8834	5 58 34.4	13.635	4	1 42 35.01	1.9603	15 59 20.7	11.077
5	0 12 38.30	1.8838	6 12 11.5	13.602	5	1 44 32.71	1.9630	16 10 23.1	11.003
6	0 14 31.34	1.8843	6 25 46.6	13.567	6	1 46 30.57	1.9657	16 21 21.1	10.930
7	0 16 24.41	1.8848	6 39 19.5	13.532	7	1 48 28.59	1.9683	16 32 14.7	10.855
8	0 18 17.52	1.8854	6 52 50.4	13.497	8	1 50 26.76	1.9709	16 43 3.7	10.779
9	0 20 10.66	1.8861	7 6 19.1	13.459	9	1 52 25.10	1.9737	16 53 48.2	10.703
10	0 22 3.85	1.8868	7 19 45.5	13.421	10	1 54 23.60	1.9763	17 4 28.0	10.625
11	0 23 57.08	1.8876	7 33 9.6	13.383	11	1 56 22.26	1.9791	17 15 3.2	10.547
12	0 25 50.36	1.8884	7 46 31.4	13.343	12	1 58 21.09	1.9819	17 25 33.6	10.468
13	0 27 43.69	1.8892	7 59 50.8	13.303	13	2 0 20.09	1.9847	17 35 59.3	10.388
14	0 29 37.08	1.8902	8 13 7.7	13.262	14	2 2 19.25	1.9874	17 46 20.2	10.308
15	0 31 30.52	1.8912	8 26 22.2	13.220	15	2 4 18.58	1.9903	17 56 36.3	10.227
16	0 33 24.02	1.8922	8 39 34.1	13.177	16	2 6 18.09	1.9932	18 6 47.5	10.145
17	0 35 17.59	1.8933	8 52 43.4	13.133	17	2 8 17.76	1.9960	18 16 53.7	10.063
18	0 37 11.22	1.8945	9 5 50.1	13.088	18	2 10 17.61	1.9990	18 26 55.0	9.979
19	0 39 4.93	1.8957	9 18 54.0	13.043	19	2 12 17.64	2.0019	18 36 51.2	9.894
20	0 40 58.71	1.8969	9 31 55.2	12.997	20	2 14 17.84	2.0048	18 46 42.3	9.809
21	0 42 52.56	1.8982	9 44 53.6	12.950	21	2 16 18.21	2.0077	18 56 28.3	9.724
22	0 44 46.49	1.8996	9 57 49.2	12.902	22	2 18 18.76	2.0107	19 6 9.2	9.638
23	0 46 40.51	1.9010	N.10 10 41.9	12.853	23	2 20 19.49	2.0137	N.19 15 44.9	9.551
	SUNDAY 10.					**TUESDAY 12.**			
0	0 48 34.61	1.9024	N.10 23 31.5	12.803	0	2 22 20.40	2.0166	N.19 25 15.3	9.463
1	0 50 28.80	1.9039	10 36 18.2	12.752	1	2 24 21.48	2.0196	19 34 40.4	9.373
2	0 52 23.08	1.9055	10 49 1.8	12.701	2	2 26 22.75	2.0226	19 44 0.1	9.284
3	0 54 17.46	1.9071	11 1 42.3	12.649	3	2 28 24.19	2.0256	19 53 14.5	9.194
4	0 56 11.93	1.9087	11 14 19.7	12.596	4	2 30 25.82	2.0287	20 2 23.4	9.103
5	0 58 6.51	1.9104	11 26 53.8	12.542	5	2 32 27.63	2.0316	20 11 26.9	9.012
6	1 0 1.18	1.9121	11 39 24.7	12.488	6	2 34 29.61	2.0346	20 20 24.9	8.920
7	1 1 55.96	1.9139	11 51 52.3	12.433	7	2 36 31.78	2.0377	20 29 17.3	8.827
8	1 3 50.85	1.9158	12 4 16.6	12.376	8	2 38 34.13	2.0408	20 38 4.1	8.733
9	1 5 45.85	1.9176	12 16 37.4	12.318	9	2 40 36.67	2.0438	20 46 45.2	8.638
10	1 7 40.96	1.9195	12 28 54.8	12.261	10	2 42 39.38	2.0468	20 55 20.7	8.544
11	1 9 36.19	1.9214	12 41 8.7	12.202	11	2 44 42.28	2.0498	21 3 50.5	8.448
12	1 11 31.53	1.9233	12 53 19.0	12.142	12	2 46 45.35	2.0528	21 12 14.4	8.351
13	1 13 26.99	1.9254	13 5 25.7	12.082	13	2 48 48.61	2.0559	21 20 32.6	8.254
14	1 15 22.58	1.9275	13 17 28.8	12.020	14	2 50 52.06	2.0589	21 28 44.9	8.156
15	1 17 18.29	1.9296	13 29 28.1	11.958	15	2 52 55.68	2.0619	21 36 51.3	8.058
16	1 19 14.13	1.9318	13 41 23.7	11.895	16	2 54 59.49	2.0649	21 44 51.8	7.959
17	1 21 10.10	1.9340	13 53 15.5	11.832	17	2 57 3.47	2.0679	21 52 46.4	7.859
18	1 23 6.21	1.9362	14 5 3.5	11.767	18	2 59 7.64	2.0710	22 0 34.9	7.758
19	1 25 2.45	1.9384	14 16 47.5	11.701	19	3 1 11.99	2.0739	22 8 17.3	7.657
20	1 26 58.82	1.9407	14 28 27.6	11.635	20	3 3 16.51	2.0769	22 15 53.7	7.556
21	1 28 55.34	1.9431	14 40 3.7	11.568	21	3 5 21.22	2.0800	22 23 24.0	7.453
22	1 30 51.99	1.9454	14 51 35.8	11.501	22	3 7 26.11	2.0829	22 30 48.1	7.349
23	1 32 48.79	1.9479	15 3 3.8	11.432	23	3 9 31.17	2.0858	22 38 5.9	7.245
24	1 34 45.74	1.9503	N.15 14 27.6	11.362	24	3 11 36.41	2.0888	N.22 45 17.5	7.141

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 13.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	3 11 36.41	[illegible]	N.22 45 17.5	7.141
1	3 13 41.83	[illegible]	22 52 22.8	[illegible]
2	3 15 47.42	[illegible]	22 59 21.8	[illegible]
3	3 17 53.18	[illegible]	23 6 14.5	[illegible]
4	3 19 59.11	[illegible]	23 13 0.8	[illegible]
5	3 22 5.22	[illegible]	23 19 40.6	[illegible]
6	3 24 11.49	[illegible]	23 26 14.0	[illegible]
7	3 26 17.94	[illegible]	23 32 40.9	[illegible]
8	3 28 24.55	0.1116	23 39 1.3	[illegible]
9	3 30 31.33	[illegible]	23 45 15.1	[illegible]
10	3 32 38.28	[illegible]	23 51 22.3	[illegible]
11	3 34 45.38	[illegible]	23 57 22.8	[illegible]
12	3 36 52.65	[illegible]	24 3 16.7	[illegible]
13	3 39 0.08	[illegible]	24 9 3.9	[illegible]
14	3 41 7.67	[illegible]	24 14 44.4	[illegible]
15	3 43 15.41	[illegible]	24 20 18.1	[illegible]
16	3 45 23.31	[illegible]	24 25 45.0	[illegible]
17	3 47 31.36	[illegible]	24 31 5.1	[illegible]
18	3 49 39.56	[illegible]	24 36 18.3	[illegible]
19	3 51 47.91	[illegible]	24 41 24.6	[illegible]
20	3 53 56.40	[illegible]	24 46 24.0	[illegible]
21	3 56 5.04	[illegible]	24 51 16.5	[illegible]
22	3 58 13.82	[illegible]	24 56 2.1	[illegible]
23	4 0 22.74	[illegible]	N 25 0 40.6	[illegible]

THURSDAY 14.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	4 2 31.80	[illegible]	N 25 5 12.1	[illegible]
1	4 4 40.99	[illegible]	25 9 36.6	[illegible]
2	4 6 50.32	[illegible]	25 13 53.9	[illegible]
3	4 8 59.78	[illegible]	25 18 4.2	[illegible]
4	4 11 9.36	[illegible]	25 22 7.4	[illegible]
5	4 13 19.07	[illegible]	25 26 3.4	[illegible]
6	4 15 28.[illegible]	[illegible]	25 29 52.2	[illegible]
7	4 17 38.[illegible]	[illegible]	25 33 33.[illegible]	[illegible]
8	4 19 4[illegible]	[illegible]	25 37 8.2	[illegible]
9	4 21 5[illegible]	[illegible]	25 40 35.3	[illegible]
10	4 24 9.37	[illegible]	25 43 55.2	[illegible]
11	4 26 19.77	[illegible]	25 47 7.8	[illegible]
12	4 28 30.[illegible]	[illegible]	25 50 13.1	[illegible]
13	4 30 4[illegible]	[illegible]	25 53 11.1	[illegible]
14	4 32 51.[illegible]	[illegible]	25 56 1.7	[illegible]
15	4 35 [illegible]	[illegible]	25 58 45.0	[illegible]
16	4 37 13.25	[illegible]	26 1 20.9	[illegible]
17	4 39 24.23	[illegible]	26 3 49.4	[illegible]
18	4 41 35.[illegible]	[illegible]	26 6 10.4	[illegible]
19	4 43 4[illegible].44	[illegible]	26 8 24.0	[illegible]
20	4 45 5[illegible]	[illegible]	26 10 [illegible]	[illegible]
21	4 4[illegible] [illegible]	[illegible]	26 12 [illegible]	[illegible]
22	4 50 2[illegible].34	[illegible]	26 14 [illegible]	[illegible]
23	4 52 31.79	[illegible]	26 16 4.0	[illegible]
24	4 54 43.30	[illegible]	N 26 17 4[illegible].3	[illegible]

FRIDAY 15.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	4 54 43.30	[illegible]	N.26 17 40.3	[illegible]
1	4 56 54.88	[illegible]	26 19 9.1	[illegible]
2	4 59 6.52	[illegible]	26 20 30.3	[illegible]
3	5 1 18.21	[illegible]	26 21 44.0	[illegible]
4	5 3 29.96	[illegible]	26 22 50.2	[illegible]
5	5 5 41.76	[illegible]	26 23 48.9	[illegible]
6	5 7 53.60	[illegible]	26 24 39.9	[illegible]
7	5 10 5.49	[illegible]	26 25 23.4	[illegible]
8	5 12 17.42	[illegible]	26 25 59.4	[illegible]
9	5 14 29.38	[illegible]	26 26 27.7	[illegible]
10	5 16 41.38	[illegible]	26 26 48.5	[illegible]
11	5 18 53.40	[illegible]	26 27 1.7	[illegible]
12	5 21 5.45	[illegible]	26 27 7.2	+ [illegible]
13	5 23 17.52	[illegible]	26 27 5.2	− [illegible]
14	5 25 29.61	[illegible]	26 26 55.5	[illegible]
15	5 27 41.72	[illegible]	26 26 38.2	[illegible]
16	5 29 53.84	[illegible]	26 26 13.4	[illegible]
17	5 32 5.97	[illegible]	26 25 40.9	[illegible]
18	5 34 18.10	[illegible]	26 25 0.8	[illegible]
19	5 36 30.23	[illegible]	26 24 13.1	[illegible]
20	5 38 42.36	[illegible]	26 23 17.8	[illegible]
21	5 40 54.49	[illegible]	26 22 14.9	1.111
22	5 43 6.61	[illegible]	26 21 4.4	[illegible]
23	5 45 18.71	[illegible]	N 26 19 46.3	[illegible]

SATURDAY 16.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	5 47 30.80	[illegible]	N 26 18 20.6	[illegible]
1	5 49 42.87	[illegible]	26 16 47.3	[illegible]
2	5 51 54.92	[illegible]	26 15 6.4	[illegible]
3	5 54 6.94	[illegible]	26 13 17.9	[illegible]
4	5 56 18.94	[illegible]	26 11 21.8	[illegible]
5	5 58 30.90	[illegible]	26 9 18.2	[illegible]
6	6 0 42.83	[illegible]	26 7 6.9	[illegible]
7	6 2 54.72	[illegible]	26 4 48.1	[illegible]
8	6 5 6.57	[illegible]	26 2 21.8	[illegible]
9	6 7 18.38	[illegible]	25 59 47.9	[illegible]
10	6 9 30.14	[illegible]	25 57 6.5	[illegible]
11	6 11 41.85	[illegible]	25 54 17.5	[illegible]
12	6 13 53.51	[illegible]	25 51 21.0	[illegible]
13	6 16 5.11	[illegible]	25 48 17.0	[illegible]
14	6 18 16.65	[illegible]	25 45 5.5	[illegible]
15	6 20 28.13	[illegible]	25 41 46.6	[illegible]
16	6 22 39.55	[illegible]	25 38 20.2	[illegible]
17	6 24 50.90	[illegible]	25 34 46.3	[illegible]
18	6 27 2.18	[illegible]	25 31 5.0	[illegible]
19	6 29 13.39	[illegible]	25 27 16.3	[illegible]
20	6 31 24.52	[illegible]	25 23 20.1	[illegible]
21	6 33 35.5[illegible]	[illegible]	25 19 16.6	[illegible]
22	6 35 46.55	[illegible]	25 15 5.7	[illegible]
23	6 37 57.44	[illegible]	25 10 47.5	[illegible]
24	6 40 [illegible]	[illegible]	N.25 6 21.9	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 17.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	6 40 8.25	2.1794	N.25 6 21.9	4.488
1	6 42 18.97	2.1780	25 1 49.0	4.610
2	6 44 29.61	2.1765	24 57 8.7	4.732
3	6 46 40.15	2.1749	24 52 21.2	4.853
4	6 48 50.60	2.1733	24 47 26.4	4.973
5	6 51 0.95	2.1717	24 42 24.4	5.094
6	6 53 11.21	2.1701	24 37 15.1	5.215
7	6 55 21.36	2.1684	24 31 58.6	5.334
8	6 57 31.42	2.1667	24 26 35.0	5.454
9	6 59 41.37	2.1650	24 21 4.1	5.574
10	7 1 51.22	2.1633	24 15 26.1	5.693
11	7 4 0.97	2.1616	24 9 41.0	5.810
12	7 6 10.61	2.1598	24 3 48.9	5.928
13	7 8 20.14	2.1579	23 57 49.6	6.047
14	7 10 29.56	2.1561	23 51 43.3	6.163
15	7 12 38.87	2.1542	23 45 30.0	6.280
16	7 14 48.06	2.1523	23 39 9.7	6.397
17	7 16 57.14	2.1503	23 32 42.4	6.513
18	7 19 6.10	2.1484	23 26 8.1	6.629
19	7 21 14.95	2.1465	23 19 26.9	6.744
20	7 23 23.68	2.1446	23 12 38.8	6.859
21	7 25 32.30	2.1426	23 5 43.8	6.973
22	7 27 40.79	2.1405	22 58 42.0	7.087
23	7 29 49.16	2.1385	N.22 51 33.4	7.200

MONDAY 18.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	7 31 57.41	2.1365	N.22 44 18.0	7.313
1	7 34 5.54	2.1345	22 36 55.8	7.426
2	7 36 13.55	2.1325	22 29 26.9	7.538
3	7 38 21.44	2.1305	22 21 51.3	7.649
4	7 40 29.21	2.1284	22 14 9.0	7.760
5	7 42 36.85	2.1263	22 6 20.1	7.870
6	7 44 44.37	2.1243	21 58 24.6	7.980
7	7 46 51.77	2.1223	21 50 22.5	8.090
8	7 48 59.04	2.1202	21 42 13.8	8.199
9	7 51 6.19	2.1181	21 33 58.6	8.307
10	7 53 13.21	2.1160	21 25 36.9	8.415
11	7 55 20.11	2.1140	21 17 8.8	8.522
12	7 57 26.89	2.1120	21 8 34.3	8.628
13	7 59 33.55	2.1099	20 59 53.4	8.735
14	8 1 40.08	2.1078	20 51 6.1	8.842
15	8 3 46.49	2.1058	20 42 12.4	8.947
16	8 5 52.78	2.1038	20 33 12.5	9.051
17	8 7 58.94	2.1018	20 24 6.3	9.155
18	8 10 4.99	2.0998	20 14 53.9	9.259
19	8 12 10.91	2.0978	20 5 35.2	9.362
20	8 14 16.72	2.0958	19 56 10.4	9.464
21	8 16 22.41	2.0938	19 46 39.5	9.566
22	8 18 27.98	2.0919	19 37 2.5	9.667
23	8 20 33.44	2.0899	19 27 19.5	9.768
24	8 22 38.77	2.0879	N.19 17 30.4	9.868

TUESDAY 19.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	8 22 38.77	2.0879	N.19 17 30.4	9.868
1	8 24 43.99	2.0861	19 7 35.4	9.967
2	8 26 49.10	2.0842	18 57 34.4	10.066
3	8 28 54.10	2.0823	18 47 27.5	10.164
4	8 30 58.98	2.0805	18 37 14.7	10.262
5	8 33 3.76	2.0787	18 26 56.1	10.358
6	8 35 8.43	2.0769	18 16 31.7	10.455
7	8 37 12.99	2.0751	18 6 1.5	10.551
8	8 39 17.44	2.0733	17 55 25.6	10.646
9	8 41 21.79	2.0717	17 44 44.0	10.740
10	8 43 26.04	2.0700	17 33 56.8	10.833
11	8 45 30.19	2.0683	17 23 4.0	10.927
12	8 47 34.24	2.0667	17 12 5.6	11.019
13	8 49 38.19	2.0651	17 1 1.7	11.111
14	8 51 42.05	2.0636	16 49 52.3	11.208
15	8 53 45.82	2.0621	16 38 37.4	11.295
16	8 55 49.50	2.0605	16 27 17.1	11.383
17	8 57 53.08	2.0590	16 15 51.5	11.472
18	8 59 56.58	2.0577	16 4 20.5	11.561
19	9 2 0.00	2.0563	15 52 44.2	11.648
20	9 4 3.33	2.0549	15 41 2.7	11.735
21	9 6 6.59	2.0537	15 29 16.0	11.821
22	9 8 9.77	2.0523	15 17 24.2	11.907
23	9 10 12.87	2.0510	N.15 5 27.2	11.992

WEDNESDAY 20.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	9 12 15.89	2.0498	N.14 53 25.2	12.076
1	9 14 18.85	2.0487	14 41 18.1	12.159
2	9 16 21.74	2.0477	14 29 6.1	12.242
3	9 18 24.57	2.0466	14 16 49.1	12.324
4	9 20 27.33	2.0455	14 4 27.2	12.405
5	9 22 30.03	2.0446	13 52 0.5	12.486
6	9 24 32.68	2.0437	13 39 28.9	12.567
7	9 26 35.28	2.0428	13 26 52.5	12.645
8	9 28 37.82	2.0420	13 14 11.5	12.723
9	9 30 40.32	2.0413	13 1 25.8	12.801
10	9 32 42.77	2.0405	12 48 35.4	12.878
11	9 34 45.18	2.0398	12 35 40.5	12.953
12	9 36 47.55	2.0392	12 22 41.1	13.028
13	9 38 49.89	2.0387	12 9 37.2	13.103
14	9 40 52.19	2.0381	11 56 28.8	13.176
15	9 42 54.46	2.0377	11 43 16.1	13.248
16	9 44 56.71	2.0373	11 29 59.0	13.321
17	9 46 58.94	2.0370	11 16 37.6	13.392
18	9 49 1.15	2.0367	11 3 12.0	13.462
19	9 51 3.34	2.0363	10 49 42.2	13.531
20	9 53 5.51	2.0362	10 36 8.3	13.599
21	9 55 7.68	2.0362	10 22 30.3	13.667
22	9 57 9.85	2.0361	10 8 48.3	13.733
23	9 59 12.01	2.0361	9 55 2.3	13.798
24	10 1 14.18	2.0362	N. 9 41 12.5	13.863

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 21.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	10 1 14.18	[illegible]	N. 9 41 12.5	[illegible]
1	10 3 16.35	[illegible]	9 27 15.7	[illegible]
2	10 5 18.53	[illegible]	9 13 21.1	[illegible]
3	10 7 20.72	[illegible]	8 59 19.8	[illegible]
4	10 9 22.93	[illegible]	8 45 14.8	[illegible]
5	10 11 25.16	[illegible]	8 31 6.1	[illegible]
6	10 13 27.42	[illegible]	8 16 53.8	[illegible]
7	10 15 29.70	[illegible]	8 2 38.0	[illegible]
8	10 17 32.02	[illegible]	7 48 1[illegible].7	[illegible]
9	10 19 34.37	[illegible]	7 33 56.0	[illegible]
10	10 21 36.[illegible]6	[illegible]	7 19 29.9	[illegible]
11	10 23 39.19	[illegible]	7 5 0.5	[illegible]
12	10 25 41.6[illegible]	[illegible]	6 50 27.9	[illegible]
13	10 27 44.22	[illegible]	6 35 52.1	[illegible]
14	10 29 46.[illegible]1	[illegible]	6 21 13.2	[illegible]
15	10 31 49.47	[illegible]	6 6 31.5	[illegible]
16	10 33 52.19	[illegible]	5 51 46.3	[illegible]
17	10 35 54.[illegible]	[illegible]	5 36 58.4	[illegible]
18	10 37 57.84	[illegible]	5 22 7.7	[illegible]
19	10 40 0.7[illegible]	[illegible]	5 7 14.1	[illegible]
20	10 42 3.[illegible]0	[illegible]	4 52 17.[illegible]	[illegible]
21	10 44 6.[illegible]0	[illegible]	4 37 18.8	[illegible]
22	10 46 10.10	[illegible]	4 22 17.8	[illegible]
23	10 48 13.39	[illegible]	N. 4 7 13.1	[illegible]

FRIDAY 22.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	10 50 [illegible]	[illegible]	N. 3 52 6.5	[illegible]
1	10 52 [illegible]	[illegible]	3 36 57.5	[illegible]
2	10 54 [illegible]	[illegible]	3 21 [illegible]	[illegible]
3	10 56 [illegible]	[illegible]	3 6 32.6	[illegible]
4	10 58 [illegible]	[illegible]	2 51 [illegible]	[illegible]
5	11 0 [illegible]	[illegible]	2 35 [illegible]	[illegible]
6	11 2 [illegible]	[illegible]	2 20 [illegible]	[illegible]
7	11 4 41.[illegible]	[illegible]	2 5 17.2	[illegible]
8	11 6 [illegible]	[illegible]	1 [illegible] 55.4	[illegible]
9	11 8 [illegible]	[illegible]	1 34 [illegible]	[illegible]
10	11 1[illegible] [illegible]	[illegible]	1 1[illegible] 0.4	[illegible]
11	11 13 [illegible]	[illegible]	1 3 31.4	[illegible]
12	11 15 [illegible]	[illegible]	0 48 0.7	[illegible]
13	11 17 [illegible]	[illegible]	0 32 [illegible]	[illegible]
14	11 19 [illegible]	[illegible]	0 16 55.0	[illegible]
15	11 21 [illegible]	[illegible]	N. 0 1 [illegible]	[illegible]
16	11 23 [illegible]	[illegible]	S. 0 14 [illegible]	[illegible]
17	11 25 [illegible]	[illegible]	0 2[illegible] [illegible]	[illegible]
18	11 2[illegible] [illegible]	[illegible]	0 45 [illegible]	[illegible]
19	11 [illegible]	[illegible]	1 [illegible]	[illegible]
20	11 [illegible]	[illegible]	1 [illegible]	[illegible]
21	11 [illegible]	[illegible]	1 3[illegible] [illegible]	[illegible]
22	11 [illegible]	[illegible]	1 4[illegible] [illegible]	[illegible]
23	11 [illegible]	[illegible]	2 [illegible]	[illegible]
24	11 [illegible]	[illegible]	S. 2 [illegible]	[illegible]

SATURDAY 23.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	11 40 19.77	[illegible]	S. 2 19 41.3	[illegible]
1	11 42 27.13	[illegible]	2 35 25.1	[illegible]
2	11 44 34.71	[illegible]	2 51 9.3	[illegible]
3	11 46 42.51	[illegible]	3 6 53.9	[illegible]
4	11 48 50.54	[illegible]	3 22 38.6	[illegible]
5	11 50 58.[illegible]1	[illegible]	3 38 23.5	[illegible]
6	11 53 7.31	[illegible]	3 54 8.4	[illegible]
7	11 55 16.06	[illegible]	4 9 53.3	[illegible]
8	11 57 25.05	[illegible]	4 25 38.0	[illegible]
9	11 59 34.30	[illegible]	4 41 22.5	[illegible]
10	12 1 43.[illegible]0	[illegible]	4 57 6.6	[illegible]
11	12 3 53.57	[illegible]	5 12 50.3	[illegible]
12	12 6 3.60	[illegible]	5 28 33.4	[illegible]
13	12 8 13.90	[illegible]	5 44 15.9	[illegible]
14	12 10 24.48	[illegible]	5 59 57.6	[illegible]
15	12 12 35.34	[illegible]	6 15 38.5	[illegible]
16	12 14 46.48	[illegible]	6 31 18.4	[illegible]
17	12 16 57.91	[illegible]	6 46 57.3	[illegible]
18	12 19 9.64	[illegible]	7 2 35.0	[illegible]
19	12 21 21.67	[illegible]	7 18 11.4	[illegible]
20	12 23 3[illegible]	[illegible]	7 33 46.5	[illegible]
21	12 25 4[illegible]	[illegible]	7 49 20.1	[illegible]
22	12 27 5[illegible]	[illegible]	8 4 52.2	[illegible]
23	12 30 12.[illegible]4	[illegible]	S. 8 20 22.4	[illegible]

SUNDAY 24.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	12 32 26.42	[illegible]	S. 8 35 50.9	[illegible]
1	12 34 40.32	[illegible]	8 51 17.5	[illegible]
2	12 36 54.55	[illegible]	9 6 42.0	[illegible]
3	12 39 9.12	[illegible]	9 22 4.3	[illegible]
4	12 41 24.02	[illegible]	9 37 24.4	[illegible]
5	12 43 3[illegible]	[illegible]	9 52 42.1	[illegible]
6	12 45 5[illegible]	[illegible]	10 7 57.3	[illegible]
7	12 48 1[illegible]	[illegible]	10 23 9.9	[illegible]
8	12 50 27.[illegible]7	[illegible]	10 38 19.7	[illegible]
9	12 52 43.72	[illegible]	10 53 26.7	[illegible]
10	12 55 [illegible].72	[illegible]	11 8 30.8	[illegible]
11	12 57 1[illegible]	[illegible]	11 23 31.7	[illegible]
12	12 59 35.[illegible]	[illegible]	11 38 2[illegible].4	[illegible]
13	13 1 5[illegible]	[illegible]	11 53 23.[illegible]	[illegible]
14	13 4 12.[illegible]	[illegible]	12 8 14.7	[illegible]
15	13 6 31.23	[illegible]	12 23 2.1	[illegible]
16	13 8 [illegible]	[illegible]	12 37 45.[illegible]	[illegible]
17	13 11 1[illegible].07	[illegible]	12 52 25.6	[illegible]
18	13 13 [illegible]	[illegible]	13 7 1.4	[illegible]
19	13 15 [illegible]	[illegible]	13 21 33.2	[illegible]
20	13 18 [illegible]	[illegible]	13 36 [illegible]	[illegible]
21	13 20 [illegible]	[illegible]	13 50 24.1	[illegible]
22	13 22 [illegible]	[illegible]	14 4 42.9	[illegible]
23	13 25 [illegible]	[illegible]	14 18 57.2	[illegible]
24	13 27 [illegible]	[illegible]	S. 14 33 6.7	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 25.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	13 27 38.30	2.3762	S.14 33 6.7	14.118
1	13 30 1.07	2.3828	14 47 11.4	14.038
2	13 32 24.24	2.3897	15 1 11.2	13.954
3	13 34 47.83	2.3965	15 15 5.9	13.868
4	13 37 11.82	2.4033	15 28 55.4	13.780
5	13 39 36.22	2.4101	15 42 39.5	13.689
6	13 42 1.03	2.4170	15 56 18.1	13.597
7	13 44 26.26	2.4239	16 9 51.1	13.503
8	13 46 51.90	2.4308	16 23 18.4	13.406
9	13 49 17.95	2.4377	16 36 39.8	13.307
10	13 51 44.42	2.4447	16 49 55.2	13.206
11	13 54 11.31	2.4516	17 3 4.5	13.103
12	13 56 38.61	2.4585	17 16 7.5	12.998
13	13 59 6.33	2.4655	17 29 4.2	12.891
14	14 1 34.47	2.4725	17 41 54.4	12.781
15	14 4 3.03	2.4795	17 54 37.9	12.668
16	14 6 32.01	2.4864	18 7 14.6	12.554
17	14 9 1.40	2.4933	18 19 44.4	12.438
18	14 11 31.21	2.5003	18 32 7.2	12.321
19	14 14 1.44	2.5073	18 44 22.9	12.200
20	14 16 32.08	2.5141	18 56 31.2	12.078
21	14 19 3.13	2.5209	19 8 32.2	11.953
22	14 21 34.59	2.5278	19 20 25.6	11.826
23	14 24 6.47	2.5347	S.19 32 11.3	11.697

TUESDAY 26.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	14 26 38.75	2.5414	S.19 43 49.2	11.567
1	14 29 11.44	2.5483	19 55 19.3	11.434
2	14 31 44.54	2.5550	20 6 41.3	11.298
3	14 34 18.04	2.5617	20 17 55.1	11.160
4	14 36 51.94	2.5683	20 29 0.7	11.023
5	14 39 26.23	2.5748	20 39 57.8	10.882
6	14 42 0.92	2.5814	20 50 46.5	10.739
7	14 44 36.00	2.5879	21 1 26.5	10.593
8	14 47 11.47	2.5943	21 11 57.7	10.447
9	14 49 47.32	2.6007	21 22 20.1	10.298
10	14 52 23.55	2.6069	21 32 33.5	10.147
11	14 55 0.15	2.6131	21 42 37.8	9.994
12	14 57 37.12	2.6192	21 52 32.8	9.839
13	15 0 14.46	2.6253	22 2 18.5	9.683
14	15 2 52.16	2.6313	22 11 54.8	9.525
15	15 5 30.22	2.6372	22 21 21.5	9.365
16	15 8 8.62	2.6429	22 30 38.6	9.204
17	15 10 47.37	2.6487	22 39 46.0	9.041
18	15 13 26.46	2.6543	22 48 43.5	8.875
19	15 16 5.88	2.6598	22 57 31.0	8.708
20	15 18 45.63	2.6652	23 6 8.4	8.539
21	15 21 25.70	2.6704	23 14 35.7	8.370
22	15 24 6.08	2.6755	23 22 52.8	8.199
23	15 26 46.76	2.6806	23 30 59.6	8.026
24	15 29 27.75	2.6856	S.23 38 55.9	7.851

WEDNESDAY 27.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	15 29 27.75	2.6856	S.23 38 55.9	7.851
1	15 32 9.03	2.6903	23 46 41.7	7.674
2	15 34 50.59	2.6949	23 54 16.8	7.497
3	15 37 32.42	2.6994	24 1 41.3	7.318
4	15 40 14.52	2.7038	24 8 55.0	7.138
5	15 42 56.88	2.7081	24 15 57.8	6.956
6	15 45 39.49	2.7123	24 22 49.7	6.773
7	15 48 22.35	2.7162	24 29 30.6	6.589
8	15 51 5.43	2.7198	24 36 0.4	6.404
9	15 53 48.73	2.7235	24 42 19.1	6.217
10	15 56 32.25	2.7271	24 48 26.5	6.029
11	15 59 15.98	2.7304	24 54 22.6	5.841
12	16 1 59.90	2.7336	25 0 7.4	5.652
13	16 4 44.01	2.7366	25 5 40.8	5.461
14	16 7 28.29	2.7394	25 11 2.7	5.269
15	16 10 12.74	2.7421	25 16 13.1	5.077
16	16 12 57.34	2.7445	25 21 12.0	4.885
17	16 15 42.08	2.7468	25 25 59.3	4.691
18	16 18 26.96	2.7490	25 30 34.9	4.496
19	16 21 11.96	2.7509	25 34 58.8	4.301
20	16 23 57.07	2.7527	25 39 11.0	4.105
21	16 26 42.28	2.7543	25 43 11.4	3.909
22	16 29 27.59	2.7557	25 47 0.1	3.712
23	16 32 12.97	2.7569	S.25 50 36.9	3.514

THURSDAY 28.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	16 34 58.42	2.7580	S.25 54 1.8	3.317
1	16 37 43.93	2.7588	25 57 14.9	3.118
2	16 40 29.48	2.7595	26 0 16.0	2.920
3	16 43 15.07	2.7599	26 3 5.3	2.722
4	16 46 0.67	2.7602	26 5 42.6	2.522
5	16 48 46.29	2.7603	26 8 7.9	2.323
6	16 51 31.91	2.7602	26 10 21.3	2.124
7	16 54 17.51	2.7598	26 12 22.8	1.926
8	16 57 3.09	2.7594	26 14 12.4	1.726
9	16 59 48.64	2.7587	26 15 49.9	1.526
10	17 2 34.14	2.7578	26 17 15.5	1.328
11	17 5 19.58	2.7568	26 18 29.2	1.129
12	17 8 4.95	2.7555	26 19 31.0	0.930
13	17 10 50.24	2.7540	26 20 20.8	0.731
14	17 13 35.43	2.7523	26 20 58.7	0.533
15	17 16 20.52	2.7505	26 21 24.8	0.336
16	17 19 5.49	2.7485	26 21 39.0	−0.138
17	17 21 50.34	2.7463	26 21 41.3	+0.059
18	17 24 35.05	2.7439	26 21 31.9	0.255
19	17 27 19.61	2.7413	26 21 10.7	0.451
20	17 30 4.00	2.7385	26 20 37.8	0.647
21	17 32 48.23	2.7357	26 19 53.1	0.842
22	17 35 32.28	2.7325	26 18 56.8	1.035
23	17 38 16.13	2.7292	26 17 48.9	1.228
24	17 40 59.78	2.7257	S.26 16 29.5	1.420

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 29.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	17 40 59.78	[illegible]	S.26 16 29.5	[illegible]
1	17 43 43.21	[illegible]	26 14 58.5	[illegible]
2	17 46 26.42	[illegible]	26 13 16.0	[illegible]
3	17 49 9.39	[illegible]	26 11 22.1	[illegible]
4	17 51 52.12	[illegible]	26 9 16.9	[illegible]
5	17 54 34.59	[illegible]	26 7 0.3	[illegible]
6	17 57 16.[illegible]	[illegible]	26 4 32.5	[illegible]
7	17 59 58.74	[illegible]	26 1 53.5	[illegible]
8	18 2 40.40	[illegible]	25 59 3.4	[illegible]
9	18 5 21.76	[illegible]	25 56 2.3	3.111
10	18 8 2.[illegible]	[illegible]	25 52 50.1	[illegible]
11	18 10 43.58	[illegible]	25 49 27.1	[illegible]
12	18 13 24.08	[illegible]	25 45 53.2	[illegible]
13	18 16 4.13	[illegible]	25 42 8.5	[illegible]
14	18 18 43.90	[illegible]	25 38 13.2	[illegible]
15	18 21 23.34	[illegible]	25 34 7.3	[illegible]
16	18 24 2.42	[illegible]	25 29 50.8	[illegible]
17	18 26 41.14	[illegible]	25 25 23.9	[illegible]
18	18 29 19.51	[illegible]	25 20 46.6	[illegible]
19	18 31 57.50	[illegible]	25 15 59.1	[illegible]
20	18 34 35.11	[illegible]	25 11 1.4	[illegible]
21	18 37 12.34	[illegible]	25 5 53.5	[illegible]
22	18 39 49.17	[illegible]	25 0 35.7	[illegible]
23	18 42 25.61	[illegible]	S.24 55 7.9	[illegible]

SATURDAY 30.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	18 45 1.65	[illegible]	S.24 49 30.4	[illegible]
1	18 47 37.[illegible]	[illegible]	24 43 43.1	[illegible]
2	18 50 12.49	[illegible]	24 37 46.1	[illegible]
3	18 52 47.25	[illegible]	24 31 39.6	[illegible]
4	18 55 21.65	[illegible]	24 25 23.7	[illegible]
5	18 57 55.[illegible]	[illegible]	24 18 58.4	[illegible]
6	19 0 [illegible]	[illegible]	24 12 23.8	[illegible]
7	19 3 2.16	[illegible]	24 5 40.1	[illegible]
8	19 5 34.79	[illegible]	23 58 47.3	[illegible]
9	19 8 [illegible]	[illegible]	23 51 45.6	[illegible]
10	19 10 38.71	[illegible]	23 44 35.0	[illegible]
11	19 13 [illegible]	[illegible]	23 37 15.7	[illegible]
12	19 15 [illegible]	[illegible]	23 [illegible] 47.7	7.337
13	19 18 11.18	[illegible]	23 22 11.[illegible]	[illegible]
14	19 20 41.[illegible]	[illegible]	23 14 [illegible]	[illegible]
15	19 23 [illegible]	[illegible]	23 6 33.0	7.037
16	19 25 [illegible]	[illegible]	22 58 31.5	[illegible]
17	19 28 [illegible]	[illegible]	22 50 21.9	[illegible]
18	19 30 [illegible]	[illegible]	22 42 4.[illegible]	[illegible]
19	19 33 [illegible]	[illegible]	[illegible]	[illegible]
20	19 35 [illegible]	[illegible]	[illegible]	[illegible]
21	19 37 57.35	[illegible]	22 16 24.2	[illegible]
22	19 40 [illegible]	[illegible]	22 7 35.5	[illegible]
23	19 42 [illegible]	[illegible]	21 58 33.3	[illegible]
24	19 45 14.[illegible]	[illegible]	S.21 [illegible]	[illegible]

SUNDAY 31.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
	h m s	s	° ′ ″	″
0	19 45 14.39	[illegible]	S.21 49 35.7	[illegible]
1	19 47 39.11	[illegible]	21 40 24.9	[illegible]
2	19 50 3.36	[illegible]	21 31 6.9	[illegible]
3	19 52 27.13	[illegible]	21 21 41.8	[illegible]
4	19 54 50.42	[illegible]	21 12 9.7	[illegible]
5	19 57 13.24	[illegible]	21 2 30.8	[illegible]
6	19 59 35.59	[illegible]	20 52 45.1	[illegible]
7	20 1 57.46	[illegible]	20 42 52.7	[illegible]
8	20 4 18.86	[illegible]	20 32 53.8	[illegible]
9	20 6 39.79	[illegible]	20 22 48.4	[illegible]
10	20 9 0.24	[illegible]	20 12 36.7	[illegible]
11	20 11 20.22	[illegible]	20 2 18.7	[illegible]
12	20 13 39.73	[illegible]	19 51 54.5	[illegible]
13	20 15 58.78	[illegible]	19 41 24.4	[illegible]
14	20 18 17.37	[illegible]	19 30 48.3	[illegible]
15	20 20 35.49	[illegible]	19 20 6.4	10.707
16	20 22 53.15	[illegible]	19 9 18.7	[illegible]
17	20 25 10.35	[illegible]	18 58 25.4	[illegible]
18	20 27 27.10	[illegible]	18 47 26.6	[illegible]
19	20 29 43.39	[illegible]	18 36 22.3	11.117
20	20 31 59.22	[illegible]	18 25 12.6	[illegible]
21	20 34 14.61	[illegible]	18 13 57.7	[illegible]
22	20 36 29.55	[illegible]	18 2 37.6	11.277
23	20 38 44.05	[illegible]	S.17 51 12.5	[illegible]

MONDAY, NOVEMBER 1.

Hour	Right Ascension	Diff. for 1 Minute	Declination	Diff. for 1 Minute
0	20 40 58.10	[illegible]	S.17 39 42.4	[illegible]

PHASES OF THE MOON.

			d	h	m
☽	First Quarter	Oct.	2	17	31.4
○	Full Moon		10	4	41.9
☾	Last Quarter		18	9	8.9
●	New Moon		25	11	28.0

			d	h
☾	Apogee	Oct.	14	10.0
☾	Perigee		26	15.4

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	67 18 16	2561	68 58 5	2569	70 37 42	2579	72 17 6	2589
	Fomalhaut	E.	76 9 44	2639	74 31 42	2655	72 54 1	2672	71 16 43	2689
	α Pegasi	E.	97 8 39	2400	95 25 4	2408	93 41 40	2416	91 58 28	2424
2	Sun	W.	80 30 44	2639	82 8 46	2649	83 46 34	2660	85 24 8	2671
	Saturn	W.	32 57 19	2429	34 40 13	2431	36 23 4	2434	38 5 50	2439
	Antares	W.	21 44 13	2309	23 29 59	2320	25 15 30	2329	27 0 47	2339
	Fomalhaut	E.	63 16 47	2799	61 42 18	2825	60 8 23	2853	58 35 4	2881
	α Pegasi	E.	83 25 45	2475	81 43 56	2486	80 2 23	2498	78 21 7	2510
3	Sun	W.	93 28 18	2725	95 4 24	2737	96 40 15	2748	98 15 51	2759
	Saturn	W.	46 37 46	2470	48 19 41	2477	50 1 26	2485	51 43 0	2494
	Antares	W.	35 43 33	2389	37 27 23	2400	39 10 58	2410	40 54 19	2420
	Fomalhaut	E.	50 59 1	3069	49 30 14	3116	48 2 24	3166	46 35 34	3220
	α Pegasi	E.	69 59 8	2577	68 19 41	2591	66 40 34	2607	65 1 48	2623
4	Sun	W.	106 10 14	2815	107 44 23	2826	109 18 17	2837	110 51 57	2848
	Saturn	W.	60 7 52	2537	61 48 14	2545	63 28 24	2555	65 8 21	2564
	Antares	W.	49 27 26	2470	51 9 21	2480	52 51 2	2490	54 32 29	2500
	α Pegasi	E.	56 53 35	2710	55 17 9	2731	53 41 10	2752	52 5 39	2774
	α Arietis	E.	98 30 49	2487	96 49 17	2496	95 7 58	2506	93 26 53	2516
5	Sun	W.	118 36 44	2903	120 8 59	2914	121 41 0	2925	123 12 47	2936
	Saturn	W.	73 25 1	2610	75 3 43	2618	76 42 13	2628	78 20 30	2637
	Antares	W.	62 56 19	2548	64 36 25	2559	66 16 17	2568	67 55 56	2577
	α Arietis	E.	85 4 53	2564	83 25 9	2574	81 45 39	2584	80 6 22	2593
6	Saturn	W.	86 28 51	2682	88 5 55	2692	89 42 46	2701	91 19 25	2710
	Antares	W.	76 11 2	2624	77 49 25	2632	79 27 36	2641	81 5 35	2650
	α Arietis	E.	71 53 12	2641	70 15 13	2651	68 37 27	2660	66 59 53	2669
	Aldebaran	E.	104 8 58	2688	102 32 2	2696	100 55 17	2704	99 18 43	2713
7	Saturn	W.	99 19 40	2755	100 55 7	2764	102 30 22	2773	104 5 25	2782
	Antares	W.	89 12 30	2695	90 49 17	2703	92 25 53	2711	94 2 18	2720
	α Aquilæ	W.	43 58 10	4165	45 7 9	4091	46 17 19	4027	47 28 32	3968
	α Arietis	E.	58 55 14	2716	57 18 56	2726	55 42 51	2736	54 6 59	2745
	Aldebaran	E.	91 18 43	2756	89 43 17	2764	88 8 2	2773	86 32 59	2782
8	Antares	W.	102 1 29	2763	103 36 45	2771	105 11 51	2779	106 46 46	2788
	α Aquilæ	W.	53 37 24	3756	54 53 12	3727	56 9 31	3700	57 26 18	3676
	α Arietis	E.	46 10 49	2795	44 36 14	2805	43 1 53	2815	41 27 45	2826
	Aldebaran	E.	78 40 36	2826	77 6 42	2836	75 33 1	2845	73 59 32	2855
9	α Aquilæ	W.	63 55 45	3590	65 14 28	3581	66 33 23	3571	67 52 29	3564
	Fomalhaut	W.	39 8 1	3899	40 21 22	3840	41 35 43	3788	42 50 58	3743
	Aldebaran	E.	66 15 9	2903	64 42 54	2912	63 10 51	2923	61 39 1	2934
	Pollux	E.	108 19 50	2852	106 46 30	2860	105 13 20	2868	103 40 20	2876
10	α Aquilæ	W.	74 29 40	3542	75 49 18	3541	77 8 57	3540	78 28 37	3541
	Fomalhaut	W.	49 17 35	3581	50 36 30	3559	51 55 49	3540	53 15 29	3522
	Aldebaran	E.	54 3 14	2988	52 32 46	3000	51 2 33	3011	49 32 34	3024
	Pollux	E.	95 57 49	2914	94 25 48	2922	92 53 57	2930	91 22 16	2937

GREENWICH MEAN TIME.

LUNAR DISTANCES

Day of the Month	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	73 56 16	[illegible]	75 35 13	[illegible]	77 13 57	[illegible]	78 52 28	[illegible]
	Fomalhaut	E.	69 39 49	[illegible]	68 3 21	[illegible]	66 27 20	[illegible]	64 51 48	[illegible]
	α Pegasi	E.	90 15 25	[illegible]	88 32 41	[illegible]	86 50 8	[illegible]	85 7 49	[illegible]
2	Sun	W.	87 1 27	[illegible]	88 38 32	[illegible]	90 15 22	[illegible]	91 51 57	[illegible]
	Saturn	W.	39 48 29	[illegible]	41 31 1	[illegible]	43 13 25	[illegible]	44 55 40	[illegible]
	Antares	W.	28 45 49	[illegible]	30 30 37	[illegible]	32 15 10	[illegible]	33 59 29	[illegible]
	Fomalhaut	E.	57 2 24	[illegible]	55 30 25	[illegible]	53 59 10	[illegible]	52 28 41	[illegible]
	α Pegasi	E.	76 40 7	[illegible]	74 59 24	[illegible]	73 19 0	[illegible]	71 38 54	[illegible]
3	Sun	W.	99 51 13	[illegible]	101 26 20	[illegible]	103 1 13	[illegible]	104 35 51	[illegible]
	Saturn	W.	53 24 22	[illegible]	55 5 32	[illegible]	56 46 31	[illegible]	58 27 18	[illegible]
	Antares	W.	42 37 25	[illegible]	44 20 17	[illegible]	46 2 54	[illegible]	47 45 17	[illegible]
	Fomalhaut	E.	45 9 4[illegible]	[illegible]	43 45 14	[illegible]	42 21 55	[illegible]	40 59 58	[illegible]
	α Pegasi	E.	63 23 24	[illegible]	61 45 22	[illegible]	60 7 42	[illegible]	58 30 26	[illegible]
4	Sun	W.	112 25 23	[illegible]	113 58 35	[illegible]	115 31 32	[illegible]	117 4 15	[illegible]
	Saturn	W.	66 48 6	[illegible]	68 27 39	[illegible]	70 6 59	[illegible]	71 46 6	[illegible]
	Antares	W.	56 13 42	[illegible]	57 54 42	[illegible]	59 35 28	[illegible]	61 16 0	[illegible]
	α Pegasi	E.	50 30 37	[illegible]	48 56 6	[illegible]	47 22 7	[illegible]	45 48 43	[illegible]
	α Arietis	E.	91 46 2	[illegible]	90 5 25	[illegible]	88 25 1	[illegible]	86 44 50	[illegible]
5	Sun	W.	124 44 20	[illegible]	126 15 39	[illegible]	127 46 44	[illegible]	129 17 35	[illegible]
	Saturn	W.	79 58 35	[illegible]	81 36 28	[illegible]	83 14 8	[illegible]	84 51 36	[illegible]
	Antares	W.	69 55 23	[illegible]	71 34 37	[illegible]	72 53 38	[illegible]	74 32 26	[illegible]
	α Arietis	E.	78 27 18	[illegible]	76 48 27	[illegible]	75 9 49	[illegible]	73 31 24	[illegible]
6	Saturn	W.	92 55 52	[illegible]	94 32 7	[illegible]	96 8 10	[illegible]	97 44 1	[illegible]
	Antares	W.	82 43 22	[illegible]	84 20 57	[illegible]	85 58 20	[illegible]	87 35 31	[illegible]
	α Arietis	E.	65 22 12	[illegible]	63 45 24	[illegible]	62 8 28	[illegible]	60 31 45	[illegible]
	Aldebaran	E.	97 42 21	[illegible]	96 6 9	[illegible]	94 30 9	[illegible]	92 54 20	[illegible]
7	Saturn	W.	105 40 16	[illegible]	107 14 55	[illegible]	108 49 22	[illegible]	110 23 38	[illegible]
	Antares	W.	95 38 31	[illegible]	97 14 31	[illegible]	98 50 21	[illegible]	100 26 8	[illegible]
	α Aquilae	W.	48 40 43	[illegible]	49 53 46	[illegible]	51 7 37	[illegible]	52 22 11	[illegible]
	α Arietis	E.	52 31 19	[illegible]	50 55 52	[illegible]	49 20 38	[illegible]	47 45 37	[illegible]
	Aldebaran	E.	84 58 7	[illegible]	83 23 27	[illegible]	81 48 58	[illegible]	80 14 41	[illegible]
8	Antares	W.	108 21 30	[illegible]	109 56 3	[illegible]	111 30 25	[illegible]	113 4 36	[illegible]
	α Aquilae	W.	58 43 11	[illegible]	60 1 6	[illegible]	61 19 2	[illegible]	62 37 16	[illegible]
	α Arietis	E.	39 53 51	[illegible]	38 20 11	[illegible]	36 46 46	[illegible]	35 13 36	[illegible]
	Aldebaran	E.	72 26 15	[illegible]	70 53 10	[illegible]	69 20 17	[illegible]	67 47 37	[illegible]
9	α Aquilae	W.	69 11 43	[illegible]	70 31 5	[illegible]	71 50 52	[illegible]	73 10 4	[illegible]
	Fomalhaut	W.	44 7 0	[illegible]	45 23 45	[illegible]	46 41 9	[illegible]	47 58 7	[illegible]
	Aldebaran	E.	60 7 28	[illegible]	58 [illegible] 2	[illegible]	57 4 52	[illegible]	55 33 56	[illegible]
	Pollux	E.	102 7 50	[illegible]	100 34 59	[illegible]	99 2 2	[illegible]	97 30 [illegible]	[illegible]
10	α Aquilae	W.	79 48 17	[illegible]	81 7 53	[illegible]	82 27 28	[illegible]	83 47 0	[illegible]
	Fomalhaut	W.	54 5 23	[illegible]	55 55 45	[illegible]	57 16 16	[illegible]	58 [illegible] 0	[illegible]
	Aldebaran	E.	48 2 51	[illegible]	46 33 24	[illegible]	45 4 14	[illegible]	43 35 20	[illegible]
	Pollux	E.	89 50 44	[illegible]	88 17 22	[illegible]	86 43 9	[illegible]	85 17 6	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
11	α Aquilæ	W.	85 6 28	3555	86 25 51	3560	87 45 9	3566	89 4 20	3572
	Fomalhaut	W.	59 57 55	3463	61 19 0	3456	62 40 13	3450	64 1 33	3445
	α Pegasi	W.	37 24 31	3409	38 46 37	3387	40 9 8	3368	41 32 1	3351
	Aldebaran	E.	42 6 44	3093	40 38 26	3110	39 10 28	3126	37 42 50	3145
	Pollux	E.	83 46 12	2974	82 15 27	2981	80 44 51	2989	79 14 24	2996
12	α Aquilæ	W.	95 38 24	3611	96 56 46	3622	98 14 57	3632	99 32 57	3643
	Fomalhaut	W.	70 49 27	3430	72 11 10	3428	73 32 55	3428	74 54 40	3427
	α Pegasi	W.	48 30 24	3297	49 54 39	3290	51 19 2	3284	52 43 32	3280
	Pollux	E.	71 44 18	3029	70 14 41	3036	68 45 13	3043	67 15 53	3048
	Regulus	E.	108 38 7	3011	107 8 8	3016	105 38 15	3022	104 8 29	3027
13	Fomalhaut	W.	81 43 20	3432	83 5 0	3435	84 26 37	3437	85 48 12	3438
	α Pegasi	W.	59 47 11	3264	61 12 5	3262	62 37 1	3260	64 1 59	3259
	Pollux	E.	59 51 0	3077	58 22 22	3082	56 53 50	3087	55 25 25	3091
	Regulus	E.	96 41 17	3052	95 12 8	3056	93 43 5	3060	92 14 6	3064
14	Fomalhaut	W.	92 35 25	3454	93 56 41	3456	95 17 54	3460	96 39 3	3464
	α Pegasi	W.	71 7 10	3253	72 32 16	3253	73 57 23	3252	75 22 31	3250
	α Arietis	W.	27 40 11	3146	29 7 25	3142	30 34 44	3138	32 2 7	3134
	Pollux	E.	48 4 42	3114	46 36 50	3118	45 9 2	3122	43 41 19	3125
	Regulus	E.	84 50 15	3078	83 21 39	3080	81 53 5	3082	80 24 33	3085
	Venus	E.	107 57 10	3568	106 38 1	3569	105 18 53	3571	103 59 47	3573
15	Fomalhaut	W.	103 23 41	3485	104 44 22	3489	106 4 58	3495	107 25 28	3499
	α Pegasi	W.	82 28 35	3243	83 53 53	3242	85 19 13	3240	86 44 35	3237
	α Arietis	W.	39 20 6	3119	40 47 53	3115	42 15 44	3113	43 43 38	3109
	Pollux	E.	36 23 51	3144	34 56 35	3149	33 29 25	3153	32 2 20	3158
	Regulus	E.	73 2 10	3084	71 33 41	3084	70 5 12	3082	68 36 41	3080
	Venus	E.	97 24 35	3575	96 5 33	3574	94 46 30	3572	93 27 25	3571
	Jupiter	E.	102 4 41	3174	100 38 1	3173	99 11 20	3173	97 44 38	3170
16	α Pegasi	W.	93 52 10	3224	95 17 51	3220	96 43 37	3216	98 9 27	3213
	α Arietis	W.	51 4 21	3087	52 32 46	3082	54 1 17	3077	55 29 55	3070
	Regulus	E.	61 13 30	3067	59 44 40	3064	58 15 46	3059	56 46 46	3055
	Venus	E.	86 51 27	3556	85 32 5	3552	84 12 38	3547	82 53 6	3541
	Jupiter	E.	90 30 23	3155	89 3 20	3151	87 36 12	3147	86 8 59	3142
	Sun	E.	116 9 33	3463	114 48 27	3457	113 27 15	3452	112 5 57	3446
17	α Arietis	W.	62 55 6	3035	64 24 35	3026	65 54 15	3018	67 24 5	3009
	Aldebaran	W.	31 34 6	3235	32 59 34	3209	34 25 32	3186	35 51 58	3165
	Regulus	E.	49 20 8	3023	47 50 24	3017	46 20 32	3009	44 50 30	3001
	Venus	E.	76 13 44	3508	74 53 29	3499	73 33 4	3491	72 12 30	3482
	Jupiter	E.	78 51 8	3110	77 23 10	3101	75 55 2	3093	74 26 44	3085
	Sun	E.	105 17 38	3410	103 55 33	3401	102 33 18	3393	101 10 53	3382
18	α Arietis	W.	74 56 15	2958	76 27 21	2946	77 58 42	2934	79 30 18	2922
	Aldebaran	W.	43 10 16	3068	44 39 5	3050	46 8 16	3031	47 37 50	3014
	Regulus	E.	37 17 37	2954	35 46 26	2944	34 15 3	2933	32 43 26	2923
	Venus	E.	65 26 57	3430	64 5 14	3418	62 43 18	3406	61 21 8	3393
	Jupiter	E.	67 2 28	3036	65 33 0	3025	64 3 18	3014	62 33 22	3003
	Sun	E.	94 15 50	3328	92 52 11	3315	91 28 17	3303	90 4 9	3289

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
11	α Aquilæ	W.	90 23 25	[illegible]	91 42 22	[illegible]	93 1 12	[illegible]	94 19 53	[illegible]
	Fomalhaut	W.	65 22 59	[illegible]	66 44 30	[illegible]	68 6 6	[illegible]	69 27 45	[illegible]
	α Pegasi	W.	42 55 13	[illegible]	44 18 41	[illegible]	45 42 24	[illegible]	47 6 19	[illegible]
	Aldebaran	E.	36 15 35	[illegible]	34 48 43	[illegible]	33 22 16	[illegible]	31 56 16	[illegible]
	Pollux	E.	77 44 6	[illegible]	76 13 56	[illegible]	74 43 55	[illegible]	73 14 8	[illegible]
12	α Aquilæ	W.	100 50 45	[illegible]	102 8 21	[illegible]	103 25 44	[illegible]	104 42 53	[illegible]
	Fomalhaut	W.	76 16 26	[illegible]	77 38 11	[illegible]	78 59 55	[illegible]	80 21 38	[illegible]
	α Pegasi	W.	54 8 7	[illegible]	55 32 47	[illegible]	56 57 32	[illegible]	58 22 20	[illegible]
	Pollux	E.	65 46 40	[illegible]	64 17 34	[illegible]	62 48 36	[illegible]	61 19 45	[illegible]
	Regulus	E.	102 38 50	[illegible]	101 9 17	[illegible]	99 39 51	[illegible]	98 10 31	[illegible]
13	Fomalhaut	W.	87 9 45	[illegible]	88 31 15	[illegible]	89 52 42	[illegible]	91 14 5	[illegible]
	α Pegasi	W.	65 26 58	[illegible]	66 51 59	[illegible]	68 17 1	[illegible]	69 42 5	[illegible]
	Pollux	E.	53 57 5	[illegible]	52 28 51	[illegible]	51 0 43	[illegible]	49 32 40	[illegible]
	Regulus	E.	90 45 12	[illegible]	89 16 22	[illegible]	87 47 36	[illegible]	86 18 54	[illegible]
14	Fomalhaut	W.	98 0 7	[illegible]	99 21 7	[illegible]	100 42 3	[illegible]	102 2 54	[illegible]
	α Pegasi	W.	76 47 41	[illegible]	78 12 52	[illegible]	79 38 5	[illegible]	81 3 19	[illegible]
	α Arietis	W.	33 29 55	[illegible]	34 57 7	[illegible]	36 24 43	[illegible]	37 52 23	[illegible]
	Pollux	E.	42 13 40	[illegible]	40 46 6	[illegible]	39 18 36	[illegible]	37 51 11	[illegible]
	Regulus	E.	78 56 3	[illegible]	77 27 34	[illegible]	75 59 6	[illegible]	74 30 38	[illegible]
	Venus	E.	102 40 43	[illegible]	101 21 40	[illegible]	100 2 38	[illegible]	98 43 37	[illegible]
15	Fomalhaut	W.	10[illegible] 45 53	[illegible]	110 6 12	[illegible]	111 26 24	[illegible]	112 46 29	[illegible]
	α Pegasi	W.	[illegible] 10 0	[illegible]	[illegible] 35 27	[illegible]	91 0 58	[illegible]	92 26 32	[illegible]
	α Ari[illegible]	W.	45 11 37	[illegible]	46 [illegible] 41	[illegible]	48 7 49	[illegible]	49 36 2	[illegible]
	Pollux	E.	30 35 21	[illegible]	2[illegible] 8 29	[illegible]	27 41 44	[illegible]	26 15 7	[illegible]
	Regulus	E.	67 8 9	[illegible]	65 39 34	[illegible]	64 10 56	[illegible]	62 42 15	[illegible]
	Venus	E.	92 8 19	[illegible]	90 49 10	[illegible]	89 29 59	[illegible]	88 10 45	[illegible]
	Jupiter	E.	96 17 53	[illegible]	94 51 6	[illegible]	93 24 15	[illegible]	91 57 21	[illegible]
16	α Pegasi	W.	99 35 21	[illegible]	101 1 20	[illegible]	102 27 24	[illegible]	103 53 34	[illegible]
	α Ari[illegible]	W.	56 58 41	[illegible]	58 27 34	[illegible]	59 56 36	[illegible]	61 25 46	[illegible]
	Re[illegible]	E.	55 17 41	[illegible]	53 48 [illegible]	[illegible]	52 19 10	[illegible]	50 49 41	[illegible]
	Ve[illegible]	E.	81 33 27	[illegible]	80 13 48	[illegible]	78 53 50	[illegible]	77 33 51	[illegible]
	Jupiter	E.	84 41 3[illegible]	[illegible]	83 14 13	[illegible]	81 46 59	[illegible]	80 19 58	[illegible]
	Sun	E.	110 44 32	[illegible]	109 23 0	[illegible]	108 1 21	[illegible]	106 39 34	[illegible]
17	α Ari[illegible]	W.	6[illegible] 54 6	[illegible]	70 24 19	[illegible]	71 54 45	[illegible]	73 25 23	[illegible]
	Aldebaran	W.	3[illegible] 1[illegible] 4[illegible]	[illegible]	38 46 5	[illegible]	40 13 46	[illegible]	41 41 50	[illegible]
	Re[illegible]	E.	43 2 18	[illegible]	41 49 55	[illegible]	40 19 21	[illegible]	[illegible] 48 35	[illegible]
	Ve[illegible]	E.	[illegible] 51 4[illegible]	[illegible]	6[illegible] 30 51	[illegible]	68 9 45	[illegible]	[illegible] 48 2[illegible]	[illegible]
	Jupiter	E.	72 58 1[illegible]	[illegible]	71 [illegible] 3[illegible]	[illegible]	70 0 4[illegible]	[illegible]	68 31 41	[illegible]
	Sun	E.	[illegible] 4[illegible] 1[illegible]	[illegible]	98 25 28	[illegible]	97 2 28	[illegible]	95 3[illegible] 16	[illegible]
18	α Arie[illegible]	W.	81 2 9	[illegible]	82 34 17	[illegible]	84 6 41	[illegible]	85 3[illegible] 23	[illegible]
	Aldebaran	W.	4[illegible] [illegible] 4[illegible]	[illegible]	[illegible] 38 2	[illegible]	52 8 41	[illegible]	53 [illegible] 42	[illegible]
	Re[illegible]	E.	31 11 [illegible]	[illegible]	[illegible] [illegible] 32	[illegible]	28 7 13	[illegible]	26 34 40	[illegible]
	Ve[illegible]	E.	[illegible] [illegible] 4[illegible]	[illegible]	58 3[illegible] 4	[illegible]	57 13 9	[illegible]	55 4[illegible] 5[illegible]	[illegible]
	Jupiter	E.	[illegible] 3 11	[illegible]	[illegible] 32 45	[illegible]	58 2 3	[illegible]	56 31 5	[illegible]
	Sun	E.	[illegible] [illegible] 45	[illegible]	87 15 5	[illegible]	85 50 9	[illegible]	84 24 55	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	α Arietis	W.	87 12 23	2854	88 45 41	2839	90 19 18	2865	91 53 14	2848
	Aldebaran	W.	55 11 5	2926	56 42 51	2909	58 14 59	2891	59 47 30	2873
	Venus	E.	54 26 33	3325	53 2 50	3310	51 38 50	3294	50 14 32	3280
	Jupiter	E.	54 59 51	2938	53 28 20	2924	51 56 31	2910	50 24 25	2895
	Sun	E.	82 59 24	3217	81 33 35	3201	80 7 27	3185	78 41 0	3168
20	α Arietis	W.	99 48 5	2728	101 24 8	2711	103 0 33	2694	104 37 21	2677
	Aldebaran	W.	67 35 55	2781	69 10 48	2763	70 46 5	2744	72 21 47	2725
	Pollux	W.	25 23 0	2867	26 56 53	2798	28 31 24	2770	30 6 31	2744
	Jupiter	E.	42 39 15	2822	41 5 16	2808	39 30 59	2793	37 56 22	2779
	Venus	E.	43 8 33	3201	41 42 25	3186	40 15 59	3170	38 49 14	3154
	Sun	E.	71 23 39	3082	69 55 7	3063	68 26 12	3045	66 56 55	3026
21	Aldebaran	W.	80 26 34	2630	82 4 48	2610	83 43 29	2591	85 22 36	2572
	Pollux	W.	38 10 27	2624	39 48 49	2601	41 27 42	2580	43 7 5	2559
	Sun	E.	59 24 38	2931	57 52 58	2912	56 20 54	2892	54 48 25	2873
22	Aldebaran	W.	93 44 41	2479	95 26 24	2460	97 8 33	2443	98 51 7	2425
	Pollux	W.	51 31 21	2454	53 13 39	2433	54 56 26	2414	56 39 41	2394
	Sun	E.	46 59 53	2779	45 24 57	2760	43 49 37	2743	42 13 54	2725
23	Pollux	W.	65 22 47	2302	67 8 44	2284	68 55 7	2267	70 41 55	2251
	Regulus	W.	28 20 58	2296	30 7 4	2277	31 53 38	2259	33 40 38	2241
	Sun	E.	34 9 47	2648	32 31 57	2635	30 53 50	2624	29 15 27	2614
27	Sun	W.	21 58 2	2429	23 40 56	2417	25 24 6	2410	27 7 27	2404
	α Aquilæ	E.	70 22 36	2705	68 46 3	2727	67 9 59	2750	65 34 26	2777
	Fomalhaut	E.	94 27 16	2400	92 43 41	2402	91 0 9	2405	89 16 42	2410
	α Pegasi	E.	116 11 55	2214	114 23 49	2212	112 35 40	2211	110 47 29	2210
28	Sun	W.	35 44 54	2410	37 28 14	2416	39 11 26	2422	40 54 29	2430
	α Aquilæ	E.	57 46 44	2960	56 15 41	3009	54 45 39	3062	53 16 43	3120
	Fomalhaut	E.	80 41 54	2457	78 59 40	2470	77 17 45	2485	75 36 11	2501
	α Pegasi	E.	101 47 6	2228	99 59 20	2234	98 11 43	2241	96 24 17	2249
29	Sun	W.	49 26 42	2479	51 8 25	2490	52 49 52	2503	54 31 1	2515
	Saturn	W.	25 57 14	2302	27 43 11	2299	29 29 12	2300	31 15 12	2303
	Fomalhaut	E.	67 14 42	2606	65 35 55	2632	63 57 43	2659	62 20 8	2689
	α Pegasi	E.	87 30 34	2303	85 44 39	2315	83 59 2	2329	82 13 45	2344
30	Sun	W.	62 52 12	2585	64 31 28	2600	66 10 23	2615	67 48 57	2630
	Saturn	W.	40 3 13	2341	41 48 13	2352	43 32 57	2363	45 17 25	2374
	Antares	W.	31 56 38	2249	33 43 53	2263	35 30 47	2277	37 17 20	2292
	Fomalhaut	E.	54 23 2	2871	52 50 6	2916	51 18 7	2964	49 47 9	3015
	α Pegasi	E.	73 32 47	2424	71 49 46	2442	70 7 11	2460	68 25 2	2480
	α Arietis	E.	115 56 20	2268	114 9 34	2281	112 23 7	2296	110 37 1	2309
31	Sun	W.	75 56 35	2709	77 33 3	2725	79 9 9	2741	80 44 54	2757
	Saturn	W.	53 55 21	2439	55 38 0	2453	57 20 19	2467	59 2 19	2481
	Antares	W.	46 4 40	2366	47 49 3	2382	49 33 4	2396	51 16 44	2412
	α Pegasi	E.	60 1 20	2585	58 22 5	2610	56 43 23	2633	55 5 13	2659
	α Arietis	E.	101 51 45	2383	100 7 46	2398	98 24 8	2413	96 40 52	2428

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XVh.	P.L. of Diff.	XVIIIh.	P.L. of Diff.	XXIh.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
19	α Arietis	W.	93 27 31	[illegible]	95 2 8	[illegible]	96 37 6	[illegible]	98 12 25	[illegible]
	Aldebaran	W.	61 20 24	[illegible]	62 53 41	[illegible]	64 27 22	[illegible]	66 1 27	[illegible]
	Venus	E.	48 49 57	[illegible]	47 25 4	[illegible]	45 59 52	[illegible]	44 34 22	[illegible]
	Jupiter	E.	48 52 0	[illegible]	47 19 17	[illegible]	45 46 15	[illegible]	44 12 54	[illegible]
	Sun	E.	77 14 13	[illegible]	75 47 6	[illegible]	74 19 38	[illegible]	72 51 49	[illegible]
20	α Arietis	W.	106 14 32	[illegible]	107 52 7	[illegible]	109 30 6	[illegible]	111 8 29	[illegible]
	Aldebaran	W.	73 57 53	[illegible]	75 34 25	[illegible]	77 11 22	[illegible]	78 48 45	[illegible]
	Pollux	W.	31 42 13	[illegible]	33 18 28	[illegible]	34 55 16	[illegible]	36 32 36	[illegible]
	Jupiter	E.	36 21 27	[illegible]	34 46 13	[illegible]	33 10 41	[illegible]	31 34 52	[illegible]
	Venus	E.	37 22 10	[illegible]	35 54 48	[illegible]	34 27 8	[illegible]	32 59 10	[illegible]
	Sun	E.	65 27 15	[illegible]	63 57 11	[illegible]	62 26 44	[illegible]	60 55 53	[illegible]
21	Aldebaran	W.	87 2 9	[illegible]	88 42 8	[illegible]	90 22 33	[illegible]	92 3 24	[illegible]
	Pollux	W.	44 46 57	[illegible]	46 27 19	[illegible]	48 8 11	[illegible]	49 49 32	[illegible]
	Sun	E.	53 15 32	[illegible]	51 42 14	[illegible]	50 8 32	[illegible]	48 34 25	[illegible]
22	Aldebaran	W.	100 34 6	[illegible]	102 17 30	[illegible]	104 1 19	[illegible]	105 45 31	[illegible]
	Pollux	W.	58 23 24	[illegible]	60 7 34	[illegible]	61 52 12	[illegible]	63 37 16	[illegible]
	Sun	E.	40 37 48	[illegible]	39 1 19	[illegible]	37 24 29	[illegible]	35 47 18	[illegible]
23	Pollux	W.	72 29 7	[illegible]	74 16 43	[illegible]	76 4 42	[illegible]	77 53 4	[illegible]
	Regulus	W.	35 28 4	[illegible]	37 15 55	[illegible]	39 4 11	[illegible]	40 52 50	[illegible]
	Sun	E.	27 36 51	[illegible]	25 58 4	[illegible]	24 19 9	[illegible]	22 40 10	[illegible]
27	Sun	W.	28 51 56	[illegible]	30 34 28	[illegible]	32 17 59	[illegible]	34 1 28	[illegible]
	α Aquilæ	E.	63 52 28	[illegible]	62 25 9	[illegible]	60 51 32	[illegible]	59 18 42	[illegible]
	Fomalhaut	E.	87 13 22	[illegible]	85 50 11	[illegible]	84 7 12	[illegible]	82 24 25	[illegible]
	α Pegasi	E.	108 59 17	[illegible]	107 11 7	[illegible]	105 23 1	[illegible]	103 35 0	[illegible]
28	Sun	W.	42 37 21	[illegible]	44 20 1	[illegible]	46 2 29	[illegible]	47 44 43	[illegible]
	α Aquilæ	E.	51 48 58	[illegible]	50 22 31	[illegible]	48 57 25	[illegible]	47 33 55	[illegible]
	Fomalhaut	E.	73 54 57	[illegible]	72 14 13	[illegible]	70 33 53	[illegible]	68 54 8	[illegible]
	α Pegasi	E.	94 37 3	[illegible]	92 50 3	[illegible]	91 3 17	[illegible]	89 16 47	[illegible]
29	Sun	W.	56 11 53	[illegible]	57 52 26	[illegible]	59 32 41	[illegible]	61 12 36	[illegible]
	Saturn	W.	33 1 7	[illegible]	34 46 55	[illegible]	36 32 33	[illegible]	38 17 59	[illegible]
	Fomalhaut	E.	60 43 13	[illegible]	59 7 0	[illegible]	57 31 32	[illegible]	55 56 52	[illegible]
	α Pegasi	E.	80 28 47	[illegible]	78 44 14	[illegible]	77 0 2	[illegible]	75 16 13	[illegible]
30	Sun	W.	69 27 11	[illegible]	71 5 4	[illegible]	72 42 35	[illegible]	74 19 46	[illegible]
	Saturn	W.	47 1 17	[illegible]	48 45 31	[illegible]	50 29 6	[illegible]	52 12 23	[illegible]
	Antares	W.	39 3 31	[illegible]	40 47 21	[illegible]	42 34 49	[illegible]	44 19 55	[illegible]
	Fomalhaut	E.	48 17 15	[illegible]	46 48 30	[illegible]	45 21 0	[illegible]	43 54 48	[illegible]
	α Pegasi	E.	66 43 21	[illegible]	65 2 7	[illegible]	63 21 22	[illegible]	61 41 6	[illegible]
	α Arietis	E.	108 51 15	[illegible]	107 5 50	[illegible]	105 20 47	[illegible]	103 36 5	[illegible]
31	Sun	W.	82 21 18	[illegible]	83 55 21	[illegible]	85 30 2	[illegible]	87 4 21	[illegible]
	Saturn	W.	60 43 57	[illegible]	62 25 19	[illegible]	64 6 20	[illegible]	65 47 1	[illegible]
	Antares	W.	53 0 2	[illegible]	54 42 52	[illegible]	56 25 34	[illegible]	58 7 48	[illegible]
	α Pegasi	E.	53 27 38	[illegible]	51 50 38	[illegible]	50 14 15	[illegible]	48 38 30	[illegible]
	α Arietis	E.	94 57 57	[illegible]	93 15 24	[illegible]	91 33 11	[illegible]	89 51 19	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Mon.	1	14 27 47.05	9.815	S. 14 36 56.6	−47.79	16 9.89	67.00	16 18.18	0.041
Tues.	2	14 31 43.01	9.848	14 55 56.4	47.19	16 10.15	67.12	16 18.77	0.008
Wed.	3	14 35 39.77	9.882	15 14 41.6	46.57	16 10.40	67.23	16 18.56	0.025
Thur.	4	14 39 37.33	9.915	15 33 11.6	−45.94	16 10.65	67.35	16 17.56	0.058
Frid.	5	14 43 35.70	9.949	15 51 26.3	45.28	16 10.89	67.47	16 15.75	0.092
Sat.	6	14 47 34.90	9.983	16 9 25.1	44.61	16 11.13	67.59	16 13.12	0.126
SUN.	7	14 51 34.91	10.018	16 27 7.6	−43.93	16 11.37	67.71	16 9.67	0.161
Mon.	8	14 55 35.76	10.053	16 44 33.5	43.23	16 11.60	67.83	16 5.39	0.196
Tues.	9	14 59 37.46	10.088	17 1 42.4	42.51	16 11.83	67.95	16 0.26	0.231
Wed.	10	15 3 40.00	10.123	17 18 34.0	−41.78	16 12.06	68.06	15 54.30	0.266
Thur.	11	15 7 43.39	10.159	17 35 7.7	41.03	16 12.28	68.18	15 47.48	0.302
Frid.	12	15 11 47.64	10.195	17 51 23.3	40.26	16 12.50	68.30	15 39.80	0.338
Sat.	13	15 15 52.76	10.231	18 7 20.4	−39.48	16 12.71	68.42	15 31.27	0.374
SUN.	14	15 19 58.74	10.267	18 22 58.4	38.68	16 12.92	68.54	15 21.87	0.410
Mon.	15	15 24 5.58	10.303	18 38 17.2	37.87	16 13.12	68.66	15 11.61	0.445
Tues.	16	15 28 13.29	10.339	18 53 16.2	−37.04	16 13.32	68.77	15 0.49	0.481
Wed.	17	15 32 21.85	10.375	19 7 55.1	36.19	16 13.52	68.89	14 48.51	0.517
Thur.	18	15 36 31.27	10.410	19 22 13.4	35.33	16 13.72	69.00	14 35.69	0.552
Frid.	19	15 40 41.54	10.445	19 36 10.9	−34.45	16 13.91	69.11	14 22.01	0.587
Sat.	20	15 44 52.64	10.480	19 49 47.1	33.55	16 14.10	69.22	14 7.51	0.622
SUN.	21	15 49 4.58	10.514	20 3 1.6	32.64	16 14.28	69.33	13 52.17	0.656
Mon.	22	15 53 17.32	10.547	20 15 54.0	−31.72	16 14.47	69.44	13 36.04	0.689
Tues.	23	15 57 30.86	10.580	20 28 24.0	30.78	16 14.65	69.55	13 19.10	0.722
Wed.	24	16 1 45.18	10.612	20 40 31.3	29.82	16 14.83	69.65	13 1.38	0.754
Thur.	25	16 6 0.26	10.644	20 52 15.4	−28.85	16 15.00	69.75	12 42.91	0.785
Frid.	26	16 10 16.08	10.674	21 3 36.0	27.86	16 15.17	69.85	12 23.70	0.815
Sat.	27	16 14 32.63	10.704	21 14 32.8	26.86	16 15.34	69.95	12 3.76	0.845
SUN.	28	16 18 49.87	10.733	21 25 5.5	−25.85	16 15.51	70.05	11 43.13	0.874
Mon.	29	16 23 7.80	10.761	21 35 13.8	24.83	16 15.68	70.14	11 21.82	0.902
Tues.	30	16 27 26.38	10.788	21 44 57.3	23.79	16 15.84	70.23	10 59.86	0.928
Wed.	31	16 31 45.60	10.814	S. 21 54 15.8	−22.74	16 16.00	70.32	10 37.26	0.954

Note.—The mean time of semidiameter passing may be found by subtracting 0^s.19 from the sidereal time.

The sign — prefixed to the hourly change of declination indicates that south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Added to Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Mon	1	14 27 49.72	9.816	S. 14 37 9.5	-47.78	16 18.19	0.040	14 44 7.91
Tues.	2	14 31 45.[illegible]	9.84[illegible]	14 56 9.2	47.18	16 18.77	0.007	14 48 4.46
Wed	3	14 35 42.46	9.8[illegible]	15 14 54.2	46.96	16 18.55	0.026	14 52 1.01
Thur.	4	14 39 40.03	9.915	15 33 24.1	-45.98	16 17.54	0.060	14 55 57.57
Frid	5	14 43 38.40	9.949	15 51 3[illegible].5	45.27	16 15.72	0.094	14 59 54.13
Sat.	6	14 47 37.[illegible]	9.9[illegible]	16 9 37.1	44.60	16 13.09	0.128	15 3 50.68
SUN.	7	14 51 37.61	10.018	16 27 19.4	-43.92	16 9.63	0.162	15 7 47.24
Mon.	8	14 55 38.46	10.0[illegible]	16 44 45.1	43.22	16 5.33	0.197	15 11 43.79
Tues.	9	14 59 40.15	10.[illegible]	17 1 53.8	42.50	16 0.20	0.232	15 15 40.35
Wed.	10	15 3 42.68	10.123	17 18 45.1	-41.77	15 54.22	0.267	15 19 36.91
Thur.	11	15 7 46.[illegible]	10.159	17 35 18.5	41.02	15 47.40	0.302	15 23 33.46
Frid.	12	15 11 50.31	10.194	17 51 33.8	40.25	15 39.71	0.338	15 27 30.02
Sat.	13	15 15 55.40	10.2[illegible]	18 7 30.5	-39.47	15 31.17	0.374	15 31 26.57
SUN.	14	15 20 1.37	[illegible]	18 23 8.3	38.67	15 21.76	0.410	15 35 23.13
Mon.	15	15 24 8.19	10.3[illegible]	18 38 26.8	37.8[illegible]	15 11.50	0.446	15 39 19.69
Tues.	16	15 28 15.88	10.338	18 53 25.4	-37.03	15 0.37	0.482	15 43 16.25
Wed.	17	15 32 24.41	10.374	19 8 4.0	36.18	14 48.39	0.518	15 47 12.80
Thur	18	15 36 33.[illegible]	10.409	19 22 22.0	35.32	14 35.55	0.553	15 51 9.36
Frid.	19	15 40 44.04	10.444	19 36 19.1	-34.44	14 21.87	0.588	15 55 5.91
Sat.	20	15 44 55.11	10.478	19 49 54.9	33.54	14 7.36	0.622	15 59 2.47
SUN.	21	15 49 7.01	10.512	20 3 9.1	32.63	13 52.02	0.656	16 2 59.03
Mon.	22	15 53 19.71	10.546	20 16 1.2	31.70	13 35.88	0.689	16 6 55.59
Tues.	23	15 57 33.[illegible]	10.5[illegible]	20 28 3[illegible]	30.76	13 18.94	0.722	16 10 52.14
Wed	24	16 1 47.48	10.611	20 40 37.7	29.80	13 1.22	0.754	16 14 48.70
Thur.	25	16 6 2.51	10.642	20 52 21.4	28.83	12 42.75	0.785	16 18 45.26
Frid	26	16 10 1[illegible]	10.[illegible]	21 3 41.7	27.85	12 23.53	0.815	16 22 41.82
Sat.	27	16 14 34.7[illegible]	10.[illegible]	21 14 3[illegible]	26.85	12 3.60	0.845	16 26 38.37
SUN.	28	16 18 51.[illegible]	10.[illegible]	21 25 10.5	25.84	11 42.96	0.874	16 30 34.93
Mon	29	16 23 [illegible]	10.[illegible]	21 35 18.4	24.81	11 21.65	0.902	16 34 31.49
Tues	30	16 27 2[illegible]	10.[illegible]	21 45 1.6	23.77	10 59.[illegible]	0.928	16 38 28.05
Wed	31	16 31 47.5[illegible]	10.[illegible]	S. 21 54 19.8	22.73	10 37.09	0.953	16 42 24.[illegible]

NOTE. The [illegible] may be assumed the same as that for apparent noon. The [illegible] that much decimals are in [illegible].

Diff. for 1 Hour. + 9s.8565 (Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	305	219 21 44.4	20 49.0	150.27	+ 0.16	9.9964509	−47.4	9 14 21.03
2	306	220 21 51.6	20 56.0	150.34	0.30	9.9963377	47.0	9 10 25.12
3	307	221 22 0.5	21 4.8	150.40	0.42	9.9962256	46.5	9 6 29.21
4	308	222 22 10.9	21 15.1	150.47	+ 0.53	9.9961146	−45.9	9 2 33.30
5	309	223 22 22.8	21 26.8	150.53	0.62	9.9960051	45.3	8 58 37.39
6	310	224 22 36.2	21 40.1	150.60	0.68	9.9958971	44.6	8 54 41.48
7	311	225 22 51.2	21 54.9	150.66	+ 0.71	9.9957908	−43.9	8 50 45.57
8	312	226 23 7.8	22 11.4	150.73	0.71	9.9956863	43.2	8 46 49.66
9	313	227 23 26.1	22 29.5	150.80	0.69	9.9955836	42.4	8 42 53.75
10	314	228 23 46.0	22 49.3	150.87	+ 0.63	9.9954828	−41.6	8 38 57.84
11	315	229 24 7.7	23 10.8	150.94	0.55	9.9953840	40.8	8 35 1.93
12	316	230 24 31.1	23 34.1	151.01	0.44	9.9952870	40.0	8 31 6.02
13	317	231 24 56.4	23 59.2	151.09	+ 0.33	9.9951919	−39.2	8 27 10.11
14	318	232 25 23.4	24 26.1	151.16	0.20	9.9950987	38.5	8 23 14.20
15	319	233 25 52.2	24 54.7	151.24	+ 0.06	9.9950073	37.8	8 19 18.29
16	320	234 26 23.0	25 25.4	151.32	− 0.06	9.9949174	−37.1	8 15 22.38
17	321	235 26 55.6	25 57.8	151.40	0.18	9.9948292	36.4	8 11 26.47
18	322	236 27 30.0	26 32.0	151.47	0.28	9.9947425	35.8	8 7 30.56
19	323	237 28 6.1	27 8.0	151.54	− 0.36	9.9946572	−35.3	8 3 34.65
20	324	238 28 44.0	27 45.7	151.61	0.41	9.9945731	34.8	7 59 38.74
21	325	239 29 23.5	28 25.0	151.68	0.45	9.9944902	34.3	7 55 42.82
22	326	240 30 4.6	29 6.0	151.74	− 0.44	9.9944084	−33.8	7 51 46.91
23	327	241 30 47.2	29 48.4	151.80	0.40	9.9943278	33.4	7 47 51.00
24	328	242 31 31.2	30 32.2	151.86	0.33	9.9942483	32.9	7 43 55.09
25	329	243 32 16.6	31 17.4	151.91	− 0.24	9.9941700	−32.4	7 39 59.18
26	330	244 33 3.1	32 3.8	151.96	0.13	9.9940927	31.9	7 36 3.27
27	331	245 33 50.8	32 51.3	152.01	− 0.01	9.9940168	31.4	7 32 7.36
28	332	246 34 39.6	33 39.9	152.05	+ 0.12	9.9939422	−30.8	7 28 11.44
29	333	247 35 29.4	34 29.6	152.09	0.26	9.9938690	30.2	7 24 15.53
30	334	248 36 20.1	35 20.1	152.13	0.38	9.9937973	29.5	7 20 19.62
31	335	249 37 11.6	36 11.4	152.16	+ 0.50	9.9937275	−28.7	7 16 23.71

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January $0^d.0$.

Diff. for 1 Hour, $-9^s.8296$. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	Semidiameter. Noon.	Semidiameter. Midnight.	Horizontal Parallax. Noon.	Diff. for 1 Hour.	Horizontal Parallax. Midnight.	Diff. for 1 Hour.	Upper Transit. Meridian of Greenwich.	Diff. for 1 Hour.	Age. Noon.
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 50.7	15 44.4	58 2.5	−1.96	57 39.2	−1.91	6 9.4	2.09	6.5
2	15 38.2	15 32.3	57 16.6	1.84	56 55.0	1.75	6 57.6	1.93	7.5
3	15 26.7	15 21.5	56 34.5	1.65	56 15.3	1.55	7 42.5	1.82	8.5
4	15 16.6	15 12.1	55 57.4	−1.44	55 40.8	−1.33	8 25.5	1.76	9.5
5	15 7.9	15 4.1	55 25.5	1.22	55 11.5	1.11	9 7.5	1.75	10.5
6	15 0.7	14 57.5	54 58.8	1.01	54 47.3	0.91	9 49.8	1.78	11.5
7	14 54.7	14 52.3	54 37.0	0.81	54 27.9	−0.71	10 33.3	1.84	12.5
8	14 50.1	14 48.2	54 19.9	0.62	54 13.1	0.52	11 18.4	1.92	13.5
9	14 46.7	14 45.5	54 7.5	0.42	54 3.1	0.32	12 5.6	2.01	14.5
10	14 44.6	14 44.1	53 59.9	−0.21	53 58.0	−0.10	12 54.5	2.07	15.5
11	14 44.0	14 44.3	53 57.6	+0.03	53 58.6	+0.15	13 44.7	2.10	16.5
12	14 45.0	14 46.2	54 1.2	0.29	54 5.6	0.44	14 35.1	2.09	17.5
13	14 47.9	14 50.1	54 11.7	+0.59	54 19.8	+0.76	15 24.9	2.05	18.5
14	14 52.8	14 56.2	54 29.9	0.93	54 42.2	1.11	16 13.2	1.98	19.5
15	15 0.1	15 4.6	54 56.5	1.29	55 13.2	1.48	17 0.0	1.92	20.5
16	15 9.7	15 15.4	55 32.0	+1.66	55 52.9	+1.83	17 45.5	1.89	21.5
17	15 21.7	15 28.5	56 15.9	2.00	56 40.8	2.15	18 30.4	1.87	22.5
18	15 35.7	15 43.3	57 7.4	2.27	57 35.2	2.36	19 15.6	1.91	23.5
19	15 51.1	15 59.1	58 4.0	+2.42	58 33.2	+2.43	20 2.5	2.01	24.5
20	16 7.0	16 14.7	59 2.3	2.39	59 30.6	2.30	20 52.4	2.16	25.5
21	16 22.0	16 28.6	59 57.4	2.14	60 21.9	1.92	21 46.6	2.36	26.5
22	16 34.5	16 39.4	60 43.4	+1.64	61 1.2	+1.30	22 45.8	2.58	27.5
23	16 43.0	16 45.4	61 14.7	0.93	61 23.5	+0.52	23 49.8	2.74	28.5
24	16 46.4	16 46.0	61 27.1	+0.09	61 25.6	−0.34	6		0.1
25	16 44.2	16 41.0	61 18.9	−0.76	61 7.3	−1.15	0 56.5	2.79	1.1
26	16 36.7	16 31.3	60 51.3	1.49	60 31.6	1.78	2 2.5	2.69	2.1
27	16 25.0	16 18.1	60 8.6	[illegible]	59 43.2	2.19	3 4.6	2.48	3.1
28	16 10.7	16 3.1	59 16.1	−2.30	58 48.0	−2.35	4 1.3	2.25	4.1
29	15 55.4	15 47.7	58 19.6	2.36	57 51.5	2.32	4 52.8	2.04	5.1
30	15 4[illegible].2	15 33.1	57 24.0	2.24	56 57.7	2.13	5 39.9	1.89	6.1
31	15 26.3	15 20.0	56 32.8	−2.00	56 9.6	−1.86	6 24.0	1.80	7.1

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 1.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	20 40 58.10	2.2306	S. 17 39 42.4	11.542
1	20 43 11.72	2.2233	17 28 7.5	11.622
2	20 45 24.90	2.2161	17 16 27.8	11.701
3	20 47 37.66	2.2090	17 4 43.4	11.778
4	20 49 49.98	2.2018	16 52 54.4	11.853
5	20 52 1.88	2.1948	16 41 1.0	11.928
6	20 54 13.36	2.1878	16 29 3.1	12.001
7	20 56 24.42	2.1809	16 17 0.9	12.072
8	20 58 35.07	2.1741	16 4 54.5	12.141
9	21 0 45.31	2.1673	15 52 44.0	12.209
10	21 2 55.14	2.1605	15 40 29.4	12.276
11	21 5 4.57	2.1538	15 28 10.9	12.341
12	21 7 13.60	2.1473	15 15 48.5	12.405
13	21 9 22.24	2.1408	15 3 22.3	12.467
14	21 11 30.49	2.1343	14 50 52.5	12.528
15	21 13 38.35	2.1278	14 38 19.0	12.588
16	21 15 45.83	2.1215	14 25 42.0	12.645
17	21 17 52.93	2.1152	14 13 1.6	12.702
18	21 19 59.65	2.1090	14 0 17.8	12.758
19	21 22 6.01	2.1029	13 47 30.7	12.812
20	21 24 12.00	2.0968	13 34 40.4	12.864
21	21 26 17.63	2.0908	13 21 47.0	12.916
22	21 28 22.90	2.0849	13 8 50.5	12.966
23	21 30 27.82	2.0791	S. 12 55 51.1	13.014

TUESDAY 2.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	21 32 32.39	2.0733	S. 12 42 48.8	13.062
1	21 34 36.62	2.0677	12 29 43.7	13.108
2	21 36 40.52	2.0622	12 16 35.9	13.153
3	21 38 44.08	2.0566	12 3 25.4	13.197
4	21 40 47.31	2.0511	11 50 12.3	13.238
5	21 42 50.21	2.0458	11 36 56.8	13.279
6	21 44 52.80	2.0405	11 23 38.8	13.319
7	21 46 55.07	2.0353	11 10 18.5	13.358
8	21 48 57.04	2.0302	10 56 55.9	13.395
9	21 50 58.69	2.0250	10 43 31.1	13.432
10	21 53 0.04	2.0201	10 30 4.1	13.467
11	21 55 1.10	2.0153	10 16 35.1	13.500
12	21 57 1.87	2.0104	10 3 4.1	13.533
13	21 59 2.35	2.0057	9 49 31.2	13.564
14	22 1 2.55	2.0011	9 35 56.4	13.595
15	22 3 2.48	1.9965	9 22 19.8	13.624
16	22 5 2.13	1.9919	9 8 41.5	13.652
17	22 7 1.51	1.9875	8 55 1.6	13.678
18	22 9 0.63	1.9832	8 41 20.1	13.704
19	22 10 59.50	1.9790	8 27 37.1	13.729
20	22 12 58.11	1.9748	8 13 52.6	13.753
21	22 14 56.47	1.9707	8 0 6.7	13.776
22	22 16 54.59	1.9667	7 46 19.5	13.798
23	22 18 52.48	1.9627	7 32 31.0	13.815
24	22 20 50.12	1.9588	S. 7 18 41.4	13.837

WEDNESDAY 3.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	22 20 50.12	1.9588	S. 7 18 41.4	13.837
1	22 22 47.54	1.9552	7 4 50.6	13.855
2	22 24 44.74	1.9515	6 50 58.8	13.872
3	22 26 41.72	1.9478	6 37 6.0	13.888
4	22 28 38.48	1.9443	6 23 12.2	13.904
5	22 30 35.03	1.9408	6 9 17.5	13.918
6	22 32 31.38	1.9375	5 55 22.0	13.931
7	22 34 27.53	1.9343	5 41 25.8	13.943
8	22 36 23.49	1.9310	5 27 28.8	13.955
9	22 38 19.25	1.9278	5 13 31.2	13.965
10	22 40 14.83	1.9248	4 59 33.0	13.975
11	22 42 10.22	1.9218	4 45 34.2	13.983
12	22 44 5.44	1.9189	4 31 35.0	13.990
13	22 46 0.49	1.9162	4 17 35.4	13.997
14	22 47 55.38	1.9134	4 3 35.4	14.003
15	22 49 50.10	1.9107	3 49 35.1	14.007
16	22 51 44.66	1.9081	3 35 34.6	14.010
17	22 53 39.07	1.9057	3 21 33.9	14.013
18	22 55 33.34	1.9033	3 7 33.0	14.015
19	22 57 27.46	1.9008	2 53 32.1	14.016
20	22 59 21.44	1.8986	2 39 31.1	14.016
21	23 1 15.29	1.8964	2 25 30.2	14.015
22	23 3 9.01	1.8943	2 11 29.3	14.013
23	23 5 2.60	1.8922	S. 1 57 28.6	14.010

THURSDAY 4.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	23 6 56.07	1.8903	S. 1 43 28.1	14.006
1	23 8 49.43	1.8883	1 29 27.9	14.002
2	23 10 42.67	1.8865	1 15 27.9	13.997
3	23 12 35.81	1.8848	1 1 28.3	13.990
4	23 14 28.85	1.8832	0 47 29.1	13.983
5	23 16 21.79	1.8816	0 33 30.3	13.975
6	23 18 14.64	1.8801	0 19 32.1	13.966
7	23 20 7.40	1.8786	S. 0 5 34.4	13.957
8	23 22 0.07	1.8772	N. 0 8 22.7	13.946
9	23 23 52.66	1.8759	0 22 19.1	13.934
10	23 25 45.18	1.8748	0 36 14.8	13.922
11	23 27 37.63	1.8737	0 50 9.7	13.908
12	23 29 30.02	1.8726	1 4 3.8	13.895
13	23 31 22.34	1.8715	1 17 57.1	13.880
14	23 33 14.60	1.8706	1 31 49.4	13.865
15	23 35 6.81	1.8698	1 45 40.7	13.847
16	23 36 58.97	1.8690	1 59 31.1	13.831
17	23 38 51.09	1.8682	2 13 20.4	13.812
18	23 40 43.16	1.8676	2 27 8.5	13.793
19	23 42 35.20	1.8670	2 40 55.5	13.773
20	23 44 27.20	1.8665	2 54 41.3	13.733
21	23 46 19.18	1.8662	3 8 25.9	13.732
22	23 48 11.13	1.8657	3 22 9.1	13.709
23	23 50 3.06	1.8654	3 35 51.0	13.686
24	23 51 54.98	1.8652	N. 3 49 31.4	13.662

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THE MOON'S RIGHT ASCENSION AND DECLINATION.

FRIDAY 5.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	23 51 54.98	[illegible]	N. 3 49 31.4	[illegible]
1	23 53 46.88	[illegible]	4 3 10.4	[illegible]
2	23 55 38.78	[illegible]	4 16 47.9	[illegible]
3	23 57 30.67	[illegible]	4 30 23.9	[illegible]
4	23 59 22.56	[illegible]	4 43 58.2	[illegible]
5	0 1 14.45	[illegible]	4 57 30.9	[illegible]
6	0 3 6.35	[illegible]	5 11 1.9	[illegible]
7	0 4 58.26	[illegible]	5 24 31.2	[illegible]
8	0 6 50.18	[illegible]	5 37 58.6	[illegible]
9	0 8 42.12	[illegible]	5 51 24.2	13.411
10	0 10 34.09	[illegible]	6 4 47.9	[illegible]
11	0 12 26.09	[illegible]	6 18 9.7	[illegible]
12	0 14 18.11	[illegible]	6 31 29.5	[illegible]
13	0 16 10.17	[illegible]	6 44 47.3	[illegible]
14	0 18 2.27	[illegible]	6 58 2.9	[illegible]
15	0 19 54.41	[illegible]	7 11 16.4	[illegible]
16	0 21 46.59	[illegible]	7 24 27.8	[illegible]
17	0 23 38.82	[illegible]	7 37 37.0	[illegible]
18	0 25 31.11	[illegible]	7 50 43.8	[illegible]
19	0 27 23.45	[illegible]	8 3 48.3	[illegible]
20	0 29 15.85	[illegible]	8 16 50.5	[illegible]
21	0 31 8.31	[illegible]	8 29 50.3	[illegible]
22	0 33 0.84	[illegible]	8 42 47.6	[illegible]
23	0 34 53.44	[illegible]	N. 8 55 42.4	[illegible]

SATURDAY 6.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	0 36 46.11	[illegible]	N 9 8 34.6	[illegible]
1	0 38 38.86	[illegible]	9 21 24.2	[illegible]
2	0 40 31.6[illegible]	[illegible]	9 34 11.2	[illegible]
3	0 42 24.[illegible]	[illegible]	9 46 55.5	11.715
4	0 44 17.[illegible]	[illegible]	9 59 37.0	[illegible]
5	0 46 10.68	[illegible]	10 12 15.8	[illegible]
6	0 48 3.86	[illegible]	10 24 51.7	[illegible]
7	0 49 57.14	[illegible]	10 37 24.7	[illegible]
8	0 51 50.51	[illegible]	10 49 54.[illegible]	[illegible]
9	0 53 43.99	[illegible]	11 2 21.9	[illegible]
10	0 55 37.57	[illegible]	11 14 45.9	[illegible]
11	0 57 31.26	[illegible]	11 27 6.[illegible]	[illegible]
12	0 59 25.06	[illegible]	11 39 24.7	[illegible]
13	1 1 18.97	[illegible]	11 51 3[illegible].4	[illegible]
14	1 3 13.00	[illegible]	12 3 5[illegible]	[illegible]
15	1 5 7.15	[illegible]	12 15 5[illegible].0	[illegible]
16	1 7 1.42	[illegible]	12 2[illegible] [illegible]	[illegible]
17	1 8 55.82	[illegible]	12 40 5.3	[illegible]
18	1 10 50.34	[illegible]	12 52 3.4	[illegible]
19	1 12 44.[illegible]	[illegible]	13 3 58.0	[illegible]
20	1 14 39.[illegible]	[illegible]	13 15 4[illegible].1	[illegible]
21	1 16 34.70	[illegible]	13 27 3[illegible].7	[illegible]
22	1 18 29.76	[illegible]	13 39 2[illegible].7	[illegible]
23	1 20 24.96	[illegible]	13 51 1.0	[illegible]
24	1 22 20.30	[illegible]	N 14 8 37.5	[illegible]

SUNDAY 7.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	1 22 20.30	[illegible]	N. 14 2 37.5	[illegible]
1	1 24 15.79	[illegible]	14 14 10.3	[illegible]
2	1 26 11.42	[illegible]	14 25 39.4	[illegible]
3	1 28 7.21	[illegible]	14 37 4.6	[illegible]
4	1 30 3.15	[illegible]	14 48 26.0	[illegible]
5	1 31 59.24	[illegible]	14 59 43.4	[illegible]
6	1 33 55.49	[illegible]	15 10 56.8	[illegible]
7	1 35 51.89	[illegible]	15 22 6.2	[illegible]
8	1 37 48.46	[illegible]	15 33 11.5	[illegible]
9	1 39 45.19	[illegible]	15 44 12.7	[illegible]
10	1 41 42.08	[illegible]	15 55 9.8	[illegible]
11	1 43 39.14	[illegible]	16 6 2.6	[illegible]
12	1 45 36.37	[illegible]	16 16 51.1	10.773
13	1 47 33.76	[illegible]	16 27 35.3	[illegible]
14	1 49 31.33	[illegible]	16 38 15.2	[illegible]
15	1 51 29.07	[illegible]	16 48 50.6	[illegible]
16	1 53 26.99	[illegible]	16 59 21.6	[illegible]
17	1 55 25.08	[illegible]	17 9 48.1	[illegible]
18	1 57 23.35	[illegible]	17 20 10.0	[illegible]
19	1 59 21.80	[illegible]	17 30 27.3	[illegible]
20	2 1 20.43	[illegible]	17 40 40.0	[illegible]
21	2 3 19.24	[illegible]	17 50 48.0	[illegible]
22	2 5 18.23	[illegible]	18 0 51.2	[illegible]
23	2 7 17.41	[illegible]	N. 18 10 49.7	[illegible]

MONDAY 8.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	2 9 16.78	[illegible]	N 18 20 43.3	[illegible]
1	2 11 16.33	[illegible]	18 30 32.0	9.771
2	2 13 16.07	[illegible]	18 40 15.8	[illegible]
3	2 15 15.99	[illegible]	18 49 54.7	[illegible]
4	2 17 16.11	[illegible]	18 59 28.5	[illegible]
5	2 19 16.41	[illegible]	19 8 57.3	[illegible]
6	2 21 16.91	[illegible]	19 18 20.9	[illegible]
7	2 23 17.60	[illegible]	19 27 3[illegible].4	[illegible]
8	2 25 18.48	[illegible]	19 36 52.7	[illegible]
9	2 27 19.55	[illegible]	19 46 0.7	[illegible]
10	2 29 20.81	[illegible]	19 55 3.5	[illegible]
11	2 31 22.27	[illegible]	20 4 0.9	[illegible]
12	2 33 23.91	[illegible]	20 12 52.[illegible]	[illegible]
13	2 35 25.75	[illegible]	20 21 39.5	[illegible]
14	2 37 27.79	[illegible]	20 30 20.6	[illegible]
15	2 39 30.02	[illegible]	20 38 56.2	[illegible]
16	2 41 32.44	[illegible]	20 47 26.2	[illegible]
17	2 43 35.06	[illegible]	20 55 50.6	[illegible]
18	2 45 37.87	[illegible]	21 4 9.3	[illegible]
19	2 47 40.87	[illegible]	21 12 22.4	[illegible]
20	2 49 44.07	[illegible]	21 20 29.7	[illegible]
21	2 51 47.46	[illegible]	21 28 31.3	[illegible]
22	2 53 51.04	[illegible]	21 36 2[illegible].0	[illegible]
23	2 55 54.82	[illegible]	21 44 16.9	[illegible]
24	2 57 58.79	[illegible]	N 21 52 0.8	[illegible]

GREENWICH MEAN TIME.

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TUESDAY 9.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	2 57 58.79	2.0677	N.21 52 0.8	7.683
1	3 0 2.95	2.0708	21 59 38.8	7.583
2	3 2 7.29	2.0740	22 7 10.8	7.483
3	3 4 11.83	2.0772	22 14 36.8	7.382
4	3 6 16.56	2.0803	22 21 56.7	7.281
5	3 8 21.47	2.0834	22 29 10.5	7.178
6	3 10 26.57	2.0865	22 36 18.1	7.076
7	3 12 31.85	2.0896	22 43 19.6	6.973
8	3 14 37.32	2.0927	22 50 14.8	6.868
9	3 16 42.97	2.0957	22 57 3.7	6.763
10	3 18 48.80	2.0987	23 3 46.3	6.658
11	3 20 54.81	2.1016	23 10 22.6	6.552
12	3 23 0.99	2.1046	23 16 52.5	6.445
13	3 25 7.36	2.1076	23 23 16.0	6.338
14	3 27 13.90	2.1104	23 29 33.0	6.229
15	3 29 20.61	2.1133	23 35 43.5	6.120
16	3 31 27.50	2.1162	23 41 47.4	6.011
17	3 33 34.56	2.1190	23 47 44.8	5.902
18	3 35 41.78	2.1218	23 53 35.6	5.792
19	3 37 49.17	2.1245	23 59 19.8	5.681
20	3 39 56.72	2.1272	24 4 57.3	5.569
21	3 42 4.43	2.1299	24 10 28.1	5.457
22	3 44 12.31	2.1326	24 15 52.1	5.344
23	3 46 20.34	2.1352	N.24 21 9.4	5.231

WEDNESDAY 10.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	3 48 28.53	2.1377	N.24 26 19.8	5.117
1	3 50 36.87	2.1402	24 31 23.4	5.003
2	3 52 45.36	2.1427	24 36 20.2	4.889
3	3 54 54.00	2.1452	24 41 10.1	4.773
4	3 57 2.78	2.1476	24 45 53.0	4.658
5	3 59 11.71	2.1499	24 50 29.0	4.542
6	4 1 20.77	2.1522	24 54 58.0	4.425
7	4 3 29.97	2.1544	24 59 20.0	4.308
8	4 5 39.30	2.1566	25 3 34.9	4.190
9	4 7 48.76	2.1588	25 7 42.8	4.072
10	4 9 58.35	2.1609	25 11 43.6	3.953
11	4 12 8.07	2.1630	25 15 37.2	3.834
12	4 14 17.91	2.1650	25 19 23.7	3.715
13	4 16 27.87	2.1669	25 23 3.0	3.596
14	4 18 37.94	2.1688	25 26 35.2	3.476
15	4 20 48.12	2.1706	25 30 0.1	3.355
16	4 22 58.41	2.1724	25 33 17.8	3.235
17	4 25 8.81	2.1742	25 36 28.3	3.114
18	4 27 19.31	2.1758	25 39 31.5	2.992
19	4 29 29.91	2.1775	25 42 27.3	2.870
20	4 31 40.61	2.1791	25 45 15.9	2.748
21	4 33 51.40	2.1805	25 47 57.1	2.626
22	4 36 2.27	2.1819	25 50 31.0	2.503
23	4 38 13.23	2.1833	25 52 57.5	2.380
24	4 40 24.27	2.1847	N.25 55 16.6	2.257

THURSDAY 11.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	4 40 24.27	2.1847	N.25 55 16.6	2.257
1	4 42 35.39	2.1859	25 57 28.3	2.133
2	4 44 46.58	2.1871	25 59 32.6	2.010
3	4 46 57.84	2.1882	26 1 29.5	1.886
4	4 49 9.16	2.1893	26 3 18.9	1.760
5	4 51 20.55	2.1903	26 5 0.9	1.638
6	4 53 32.00	2.1913	26 6 35.4	1.513
7	4 55 43.50	2.1921	26 8 2.4	1.388
8	4 57 55.05	2.1929	26 9 21.9	1.263
9	5 0 6.65	2.1937	26 10 34.0	1.138
10	5 2 18.29	2.1943	26 11 38.5	1.013
11	5 4 29.97	2.1949	26 12 35.6	0.888
12	5 6 41.68	2.1955	26 13 25.1	0.763
13	5 8 53.43	2.1960	26 14 7.1	0.638
14	5 11 5.20	2.1965	26 14 41.6	0.512
15	5 13 16.99	2.1967	26 15 8.5	0.386
16	5 15 28.81	2.1971	26 15 27.9	0.260
17	5 17 40.64	2.1973	26 15 39.7	0.134
18	5 19 52.48	2.1974	26 15 44.0	+ 0.008
19	5 22 4.33	2.1976	26 15 40.7	− 0.118
20	5 24 16.19	2.1977	26 15 29.9	0.243
21	5 26 28.05	2.1976	26 15 11.5	0.369
22	5 28 39.90	2.1974	26 14 45.6	0.494
23	5 30 51.74	2.1972	N.26 14 12.2	0.620

FRIDAY 12.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	5 33 3.57	2.1970	N.26 13 31.2	0.746
1	5 35 15.38	2.1967	26 12 42.7	0.872
2	5 37 27.18	2.1964	26 11 46.6	0.998
3	5 39 38.95	2.1959	26 10 43.0	1.123
4	5 41 50.69	2.1954	26 9 31.9	1.248
5	5 44 2.40	2.1948	26 8 13.2	1.374
6	5 46 14.07	2.1943	26 6 47.0	1.499
7	5 48 25.71	2.1937	26 5 13.3	1.623
8	5 50 37.31	2.1929	26 3 32.2	1.748
9	5 52 48.86	2.1921	26 1 43.5	1.874
10	5 55 0.36	2.1913	25 59 47.3	1.998
11	5 57 11.81	2.1904	25 57 43.7	2.123
12	5 59 23.21	2.1894	25 55 32.6	2.247
13	6 1 34.54	2.1883	25 53 14.1	2.371
14	6 3 45.81	2.1872	25 50 48.1	2.495
15	6 5 57.01	2.1862	25 48 14.7	2.618
16	6 8 8.15	2.1850	25 45 34.0	2.741
17	6 10 19.21	2.1837	25 42 45.8	2.864
18	6 12 30.19	2.1823	25 39 50.3	2.987
19	6 14 41.09	2.1810	25 36 47.4	3.110
20	6 16 51.91	2.1796	25 33 37.1	3.232
21	6 19 2.64	2.1781	25 30 19.6	3.353
22	6 21 13.28	2.1766	25 26 54.7	3.476
23	6 23 23.83	2.1750	25 23 22.5	3.598
24	6 25 34.28	2.1734	N.25 19 43.0	3.718

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SATURDAY 13.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	6 25 34.28	[illegible]	N 25 19 43.0	[illegible]
1	6 27 44.64	[illegible]	25 15 50.3	[illegible]
2	6 29 54.90	[illegible]	25 12 2.4	[illegible]
3	6 32 5.05	[illegible]	25 8 1.8	[illegible]
4	6 34 15.09	[illegible]	25 3 52.9	[illegible]
5	6 36 25.03	[illegible]	24 59 37.4	[illegible]
6	6 38 34.86	[illegible]	24 55 14.7	[illegible]
7	6 40 44.57	[illegible]	24 50 44.9	[illegible]
8	6 42 54.16	[illegible]	24 46 8.0	[illegible]
9	6 45 3.64	[illegible]	24 41 24.1	[illegible]
10	6 47 13.00	[illegible]	24 36 33.1	[illegible]
11	6 49 22.23	[illegible]	24 31 35.1	[illegible]
12	6 51 31.33	[illegible]	24 26 30.0	[illegible]
13	6 53 40.31	[illegible]	24 21 18.0	[illegible]
14	6 55 49.16	[illegible]	24 15 59.0	[illegible]
15	6 57 57.88	[illegible]	24 10 33.1	[illegible]
16	7 0 6.47	[illegible]	24 5 0.3	[illegible]
17	7 2 14.92	[illegible]	23 59 20.7	3.777
18	7 4 23.23	[illegible]	23 53 34.8	[illegible]
19	7 6 31.40	[illegible]	23 47 40.9	[illegible]
20	7 8 39.44	[illegible]	23 41 40.8	[illegible]
21	7 10 47.34	[illegible]	23 35 34.0	[illegible]
22	7 12 55.09	[illegible]	23 29 20.5	[illegible]
23	7 15 2.70	[illegible]	N.23 23 0.2	[illegible]

SUNDAY 14.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	7 17 10.16	[illegible]	N 23 16 13.3	[illegible]
1	7 19 17.49	[illegible]	23 9 49.8	[illegible]
2	7 21 24.65	[illegible]	23 3 [illegible]	[illegible]
3	7 23 31.6[illegible]	[illegible]	22 56 32.9	[illegible]
4	7 25 38.55	[illegible]	22 49 [illegible]	[illegible]
5	7 27 45.[illegible]	[illegible]	22 42 9.9	[illegible]
6	7 29 51.[illegible]	[illegible]	22 35 13.7	[illegible]
7	7 31 5[illegible]	[illegible]	22 2[illegible] 21.1	[illegible]
8	7 34 4.55	[illegible]	22 21 2.1	[illegible]
9	7 36 10.6[illegible]	[illegible]	22 13 [illegible]	[illegible]
10	7 38 16.64	[illegible]	22 6 4.9	[illegible]
11	7 40 22.46	[illegible]	21 5[illegible] [illegible]	[illegible]
12	7 42 28.12	[illegible]	21 5[illegible] 42.6	[illegible]
13	7 44 3[illegible]	[illegible]	21 42 [illegible]	[illegible]
14	7 46 3[illegible]	[illegible]	21 34 55.3	[illegible]
15	7 48 44.1[illegible]	[illegible]	21 26 52.4	[illegible]
16	7 50 4[illegible]	[illegible]	21 18 43.3	[illegible]
17	7 52 54.13	[illegible]	21 10 [illegible]	[illegible]
18	7 54 5[illegible]	[illegible]	21 2 [illegible]	[illegible]
19	7 5[illegible] 3.4[illegible]	[illegible]	20 5[illegible] [illegible]	[illegible]
20	7 59 [illegible]	[illegible]	20 45 [illegible]6	[illegible]
21	8 1 12.1[illegible]	[illegible]	20 3[illegible] 37.4	[illegible]
22	8 3 1[illegible]	[illegible]	20 27 4[illegible]	[illegible]
23	8 5 2[illegible].31	[illegible]	20 1[illegible] 51.4	[illegible]
24	8 7 24.14	[illegible]	N 20 9 54.7	[illegible]

MONDAY 15.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	8 7 24.14	[illegible]	N.20 9 54.7	[illegible]
1	8 9 27.82	[illegible]	20 0 52.1	[illegible]
2	8 11 31.36	[illegible]	19 51 43.7	[illegible]
3	8 13 34.75	[illegible]	19 42 29.6	[illegible]
4	8 15 37.99	[illegible]	19 33 9.8	9.127
5	8 17 41.08	[illegible]	19 23 44.4	9.471
6	8 19 44.03	[illegible]	19 14 13.3	[illegible]
7	8 21 46.84	[illegible]	19 4 36.7	[illegible]
8	8 23 49.51	[illegible]	18 54 54.5	[illegible]
9	8 25 52.03	[illegible]	18 45 6.8	[illegible]
10	8 27 54.42	[illegible]	18 35 13.7	[illegible]
11	8 29 56.67	[illegible]	18 25 15.1	[illegible]
12	8 31 58.78	[illegible]	18 15 11.1	[illegible]
13	8 34 0.76	[illegible]	18 5 1.8	[illegible]
14	8 36 2.60	[illegible]	17 54 47.2	[illegible]
15	8 38 4.31	[illegible]	17 44 27.3	[illegible]
16	8 40 5.90	[illegible]	17 34 2.2	[illegible]
17	8 42 7.36	[illegible]	17 23 31.9	[illegible]
18	8 44 8.69	[illegible]	17 12 56.4	[illegible]
19	8 46 9.90	[illegible]	17 2 15.8	[illegible]
20	8 48 10.[illegible]	[illegible]	16 51 30.2	[illegible]
21	8 50 11.95	[illegible]	16 40 39.5	[illegible]
22	8 52 12.80	[illegible]	16 29 43.[illegible]	[illegible]
23	8 54 13.53	[illegible]	N.16 18 43.1	11.090

TUESDAY 16.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	8 56 14.15	[illegible]	N 16 7 37.5	[illegible]
1	8 58 14.66	[illegible]	15 56 27.1	[illegible]
2	9 0 15.06	[illegible]	15 45 11.8	[illegible]
3	9 2 15.36	[illegible]	15 33 51.7	[illegible]
4	9 4 15.55	[illegible]	15 22 26.9	[illegible]
5	9 6 15.65	[illegible]	15 10 57.1	[illegible]
6	9 8 15.64	[illegible]	14 59 2[illegible].1	[illegible]
7	9 10 15.54	[illegible]	14 47 44.3	[illegible]
8	9 12 15.35	[illegible]	14 36 0.8	[illegible]
9	9 14 15.07	[illegible]	14 24 12.8	[illegible]
10	9 16 14.70	[illegible]	14 12 20.4	[illegible]
11	9 18 14.25	[illegible]	14 0 2[illegible].4	[illegible]
12	9 20 13.72	[illegible]	13 48 22.0	[illegible]
13	9 22 13.11	[illegible]	13 36 16.2	[illegible]
14	9 24 12.42	[illegible]	13 24 6.1	[illegible]
15	9 26 11.66	[illegible]	13 11 51.7	[illegible]
16	9 28 10.83	[illegible]	12 59 31.0	[illegible]
17	9 30 9.94	[illegible]	12 47 10.1	[illegible]
18	9 32 8.98	[illegible]	12 34 41.1	[illegible]
19	9 34 7.97	[illegible]	12 22 11.9	[illegible]
20	9 36 6.[illegible]	[illegible]	12 9 36.6	[illegible]
21	9 38 5.[illegible]	[illegible]	11 56 57.2	[illegible]
22	9 40 4.[illegible]	[illegible]	11 44 1[illegible]	[illegible]
23	9 42 3.4[illegible]	[illegible]	11 31 2[illegible]	[illegible]
24	9 44 2.15	[illegible]	N.11 18 35.3	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 17.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	9 44 2.15	1.9788	N. 11 18 35.3	12.887
1	9 46 0.86	1.9782	11 5 40.2	12.950
2	9 47 59.53	1.9776	10 52 41.3	13.013
3	9 49 58.17	1.9772	10 39 38.6	13.076
4	9 51 56.79	1.9768	10 26 32.2	13.138
5	9 53 55.38	1.9764	10 13 22.1	13.199
6	9 55 53.96	1.9761	10 0 8.3	13.259
7	9 57 52.51	1.9758	9 46 51.0	13.318
8	9 59 51.06	1.9757	9 33 30.1	13.378
9	10 1 49.60	1.9756	9 20 5.6	13.437
10	10 3 48.13	1.9756	9 6 37.7	13.493
11	10 5 46.67	1.9757	8 53 6.4	13.550
12	10 7 45.21	1.9758	8 39 31.7	13.606
13	10 9 43.76	1.9759	8 25 53.7	13.660
14	10 11 42.32	1.9762	8 12 12.5	13.714
15	10 13 40.90	1.9765	7 58 28.0	13.768
16	10 15 39.50	1.9769	7 44 40.3	13.821
17	10 17 38.13	1.9773	7 30 49.5	13.873
18	10 19 36.78	1.9778	7 16 55.6	13.923
19	10 21 35.47	1.9785	7 2 58.7	13.973
20	10 23 34.20	1.9792	6 48 58.8	14.023
21	10 25 32.97	1.9798	6 34 56.0	14.071
22	10 27 31.78	1.9807	6 20 50.3	14.119
23	10 29 30.65	1.9816	N. 6 6 41.7	14.166

THURSDAY 18.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	10 31 29.57	1.9825	N. 5 52 30.4	14.211
1	10 33 28.55	1.9836	5 38 16.4	14.257
2	10 35 27.60	1.9847	5 23 59.6	14.301
3	10 37 26.72	1.9859	5 9 40.3	14.343
4	10 39 25.91	1.9872	4 55 18.4	14.386
5	10 41 25.18	1.9885	4 40 54.0	14.427
6	10 43 24.53	1.9899	4 26 27.2	14.468
7	10 45 23.97	1.9914	4 11 57.9	14.508
8	10 47 23.50	1.9930	3 57 26.3	14.546
9	10 49 23.13	1.9947	3 42 52.4	14.583
10	10 51 22.86	1.9964	3 28 16.3	14.620
11	10 53 22.70	1.9982	3 13 38.0	14.655
12	10 55 22.64	2.0001	2 58 57.7	14.689
13	10 57 22.71	2.0022	2 44 15.3	14.724
14	10 59 22.90	2.0042	2 29 30.8	14.757
15	11 1 23.21	2.0063	2 14 44.4	14.788
16	11 3 23.66	2.0086	1 59 56.2	14.819
17	11 5 24.24	2.0109	1 45 6.1	14.849
18	11 7 24.97	2.0133	1 30 14.3	14.878
19	11 9 25.84	2.0158	1 15 20.8	14.906
20	11 11 26.86	2.0183	1 0 25.6	14.933
21	11 13 28.04	2.0210	0 45 28.9	14.958
22	11 15 29.38	2.0237	0 30 30.7	14.982
23	11 17 30.88	2.0264	0 15 31.0	15.006
24	11 19 32.55	2.0293	N. 0 0 30.0	15.028

FRIDAY 19.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	11 19 32.55	2.0293	N. 0 0 30.0	15.028
1	11 21 34.40	2.0324	S. 0 14 32.3	15.049
2	11 23 36.44	2.0355	0 29 35.9	15.069
3	11 25 38.66	2.0387	0 44 40.6	15.088
4	11 27 41.08	2.0419	0 59 46.4	15.106
5	11 29 43.69	2.0452	1 14 53.3	15.123
6	11 31 46.50	2.0486	1 30 1.1	15.138
7	11 33 49.52	2.0522	1 45 9.8	15.152
8	11 35 52.76	2.0558	2 0 19.3	15.164
9	11 37 56.21	2.0594	2 15 29.5	15.176
10	11 39 59.89	2.0632	2 30 40.4	15.187
11	11 42 3.79	2.0670	2 45 51.9	15.195
12	11 44 7.93	2.0710	3 1 3.8	15.203
13	11 46 12.31	2.0750	3 16 16.2	15.210
14	11 48 16.93	2.0791	3 31 29.0	15.215
15	11 50 21.80	2.0833	3 46 42.0	15.218
16	11 52 26.93	2.0877	4 1 55.2	15.221
17	11 54 32.32	2.0920	4 17 8.5	15.223
18	11 56 37.97	2.0964	4 32 21.9	15.223
19	11 58 43.89	2.1010	4 47 35.2	15.221
20	12 0 50.09	2.1057	5 2 48.4	15.218
21	12 2 56.57	2.1104	5 18 1.4	15.213
22	12 5 3.34	2.1153	5 33 14.0	15.207
23	12 7 10.40	2.1202	S. 5 48 26.2	15.199

SATURDAY 20.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	12 9 17.76	2.1252	S. 6 3 37.9	15.191
1	12 11 25.42	2.1302	6 18 49.1	15.181
2	12 13 33.38	2.1353	6 33 59.6	15.168
3	12 15 41.66	2.1406	6 49 9.3	15.155
4	12 17 50.25	2.1459	7 4 18.2	15.141
5	12 19 59.17	2.1514	7 19 26.2	15.124
6	12 22 8.42	2.1569	7 34 33.1	15.106
7	12 24 18.00	2.1625	7 49 38.9	15.087
8	12 26 27.92	2.1682	8 4 43.5	15.066
9	12 28 38.18	2.1739	8 19 46.8	15.043
10	12 30 48.79	2.1798	8 34 48.7	15.018
11	12 32 59.75	2.1858	8 49 49.0	14.992
12	12 35 11.08	2.1918	9 4 47.7	14.964
13	12 37 22.77	2.1978	9 19 44.7	14.934
14	12 39 34.82	2.2040	9 34 39.8	14.903
15	12 41 47.25	2.2103	9 49 33.0	14.870
16	12 44 0.05	2.2166	10 4 24.2	14.835
17	12 46 13.24	2.2230	10 19 13.2	14.798
18	12 48 26.81	2.2295	10 33 59.9	14.759
19	12 50 40.78	2.2361	10 48 44.3	14.720
20	12 52 55.14	2.2427	11 3 26.3	14.678
21	12 55 9.90	2.2494	11 18 5.6	14.633
22	12 57 25.07	2.2562	11 32 42.2	14.587
23	12 59 40.65	2.2631	11 47 16.0	14.539
24	13 1 56.64	2.2700	S. 12 1 46.9	14.490

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

SUNDAY 21.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	13 1 56.64	[illegible]	S.12 1 46.9	[illegible]
1	13 4 13.05	[illegible]	12 16 14.8	[illegible]
2	13 6 29.88	[illegible]	12 30 39.5	[illegible]
3	13 8 47.13	[illegible]	12 45 0.9	[illegible]
4	13 11 4.82	[illegible]	12 59 19.0	[illegible]
5	13 13 22.94	[illegible]	13 13 33.5	[illegible]
6	13 15 41.50	[illegible]	13 27 44.4	[illegible]
7	13 18 0.50	[illegible]	13 41 51.6	[illegible]
8	13 20 19.95	[illegible]	13 55 54.9	[illegible]
9	13 22 39.84	[illegible]	14 9 54.1	[illegible]
10	13 25 0.19	[illegible]	14 23 49.2	[illegible]
11	13 27 20.99	[illegible]	14 37 40.1	[illegible]
12	13 29 42.24	[illegible]	14 51 26.7	[illegible]
13	13 32 3.96	[illegible]	15 5 8.8	[illegible]
14	13 34 26.14	[illegible]	15 18 46.2	[illegible]
15	13 36 48.79	[illegible]	15 32 18.9	[illegible]
16	13 39 11.91	[illegible]	15 45 46.7	[illegible]
17	13 41 35.50	[illegible]	15 59 9.5	[illegible]
18	13 43 59.56	[illegible]	16 12 27.1	[illegible]
19	13 46 24.10	[illegible]	16 25 39.4	[illegible]
20	13 48 49.12	[illegible]	16 38 46.4	[illegible]
21	13 51 14.62	[illegible]	16 51 47.8	[illegible]
22	13 53 40.60	[illegible]	17 4 43.5	[illegible]
23	13 56 7.06	[illegible]	S.17 17 33.5	[illegible]

MONDAY 22.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	13 58 34.01	[illegible]	S.17 30 17.5	[illegible]
1	14 1 1.44	[illegible]	17 42 55.5	[illegible]
2	14 3 29.16	[illegible]	17 55 27.3	[illegible]
3	14 5 57.26	[illegible]	18 7 52.7	[illegible]
4	14 8 [illegible]	[illegible]	18 20 11.7	[illegible]
5	14 10 56.03	[illegible]	18 32 24.1	[illegible]
6	14 13 25.[illegible]	[illegible]	18 44 29.7	[illegible]
7	14 15 56.25	[illegible]	18 56 2[illegible].5	[illegible]
8	14 18 27.09	[illegible]	19 8 20.3	[illegible]
9	14 20 58.48	[illegible]	19 20 4.9	[illegible]
10	14 23 30.23	[illegible]	19 31 42.2	[illegible]
11	14 26 2.53	[illegible]	19 43 12.1	[illegible]
12	14 28 35.31	[illegible]	19 54 34.5	[illegible]
13	14 31 8.58	[illegible]	20 5 49.2	[illegible]
14	14 33 42.32	[illegible]	20 16 56.1	[illegible]
15	14 36 16.54	[illegible]	20 27 55.[illegible]	[illegible]
16	14 38 51.24	[illegible]	20 38 45.9	[illegible]
17	14 41 26.48	[illegible]	20 49 2[illegible].5	[illegible]
18	14 44 2.06	[illegible]	21 0 2.9	[illegible]
19	14 46 38.17	[illegible]	21 10 [illegible].6	[illegible]
20	14 49 14.74	[illegible]	21 2[illegible] 45.[illegible]	[illegible]
21	14 51 51.79	[illegible]	21 [illegible] 54.2	[illegible]
22	14 54 29.27	[illegible]	21 4[illegible] 53.8	[illegible]
23	14 57 7.22	[illegible]	21 50 44.4	[illegible]
24	14 59 45.62	[illegible]	S.22 0 2[illegible]	[illegible]

TUESDAY 23.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	14 59 45.62	[illegible]	S.22 0 25.8	[illegible]
1	15 2 24.47	[illegible]	22 9 58.0	[illegible]
2	15 5 3.75	[illegible]	22 19 20.9	[illegible]
3	15 7 43.47	[illegible]	22 28 34.3	[illegible]
4	15 10 23.61	[illegible]	22 37 38.0	[illegible]
5	15 13 4.18	[illegible]	22 46 32.0	[illegible]
6	15 15 45.16	[illegible]	22 55 16.2	[illegible]
7	15 18 26.56	[illegible]	23 3 50.4	[illegible]
8	15 21 8.37	[illegible]	23 12 14.5	[illegible]
9	15 23 50.57	[illegible]	23 20 28.4	[illegible]
10	15 26 33.16	[illegible]	23 28 32.0	[illegible]
11	15 29 16.13	[illegible]	23 36 25.1	[illegible]
12	15 31 59.48	[illegible]	23 44 7.7	[illegible]
13	15 34 43.20	[illegible]	23 51 39.7	[illegible]
14	15 37 27.28	[illegible]	23 59 0.9	[illegible]
15	15 40 11.71	[illegible]	24 6 11.3	[illegible]
16	15 42 56.48	[illegible]	24 13 10.8	[illegible]
17	15 45 41.59	[illegible]	24 19 59.2	[illegible]
18	15 48 27.02	[illegible]	24 26 36.5	[illegible]
19	15 51 12.76	[illegible]	24 33 2.5	[illegible]
20	15 53 58.81	[illegible]	24 39 17.3	[illegible]
21	15 56 45.15	[illegible]	24 45 20.7	[illegible]
22	15 59 31.77	[illegible]	24 51 12.6	[illegible]
23	16 2 18.67	[illegible]	S.24 56 52.9	[illegible]

WEDNESDAY 24.

Hour	Right Ascension h m s	Diff. for 1 Minute s	Declination ° ′ ″	Diff. for 1 Minute ″
0	16 5 5.83	[illegible]	S.25 2 21.6	[illegible]
1	16 7 53.25	[illegible]	25 7 38.5	[illegible]
2	16 10 40.91	[illegible]	25 12 43.7	[illegible]
3	16 13 28.79	[illegible]	25 17 37.0	[illegible]
4	16 16 16.90	[illegible]	25 22 18.3	[illegible]
5	16 19 5.21	[illegible]	25 26 47.7	[illegible]
6	16 21 53.71	[illegible]	25 31 5.1	[illegible]
7	16 24 42.40	[illegible]	25 35 10.3	[illegible]
8	16 27 31.25	[illegible]	25 39 3.4	[illegible]
9	16 30 20.26	[illegible]	25 42 44.3	[illegible]
10	16 33 9.42	[illegible]	25 46 13.0	[illegible]
11	16 35 58.71	[illegible]	25 49 29.4	[illegible]
12	16 38 48.12	[illegible]	25 52 33.4	[illegible]
13	16 41 37.64	[illegible]	25 55 25.1	[illegible]
14	16 44 27.25	[illegible]	25 58 4.3	[illegible]
15	16 47 16.94	[illegible]	26 0 31.2	[illegible]
16	16 50 6.70	[illegible]	26 2 45.6	[illegible]
17	16 52 56.51	[illegible]	26 4 47.6	[illegible]
18	16 55 46.36	[illegible]	26 6 37.1	[illegible]
19	16 58 36.24	[illegible]	26 8 14.0	[illegible]
20	17 1 26.13	[illegible]	26 9 38.5	[illegible]
21	17 4 16.02	[illegible]	26 10 50.5	[illegible]
22	17 7 5.90	[illegible]	26 11 50.0	[illegible]
23	17 9 55.75	[illegible]	26 12 36.9	[illegible]
24	17 12 45.56	[illegible]	S.26 13 11.4	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	THURSDAY 25.					**SATURDAY 27.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	17 12 45.56	2.8298	S.26 13 11.4	0.470	0	19 23 52.67	2.5726	S.22 50 56.9	8.374
1	17 15 35.32	2.8288	26 13 33.3	0.262	1	19 26 26.77	2.5642	22 42 30.1	8.518
2	17 18 25.01	2.8275	26 13 42.8	− 0.054	2	19 29 0.37	2.5557	22 33 54.7	8.661
3	17 21 14.62	2.8260	26 13 39.8	+ 0.154	3	19 31 33.45	2.5472	22 25 10.8	8.802
4	17 24 4.13	2.8243	26 13 24.3	0.362	4	19 34 6.03	2.5387	22 16 18.6	8.938
5	17 26 53.54	2.8224	26 12 56.4	0.568	5	19 36 38.10	2.5302	22 7 18.2	9.074
6	17 29 42.82	2.8203	26 12 16.1	0.775	6	19 39 9.65	2.5215	21 58 9.7	9.208
7	17 32 31.97	2.8179	26 11 23.4	0.981	7	19 41 40.68	2.5129	21 48 53.2	9.341
8	17 35 20.97	2.8154	26 10 18.4	1.186	8	19 44 11.20	2.5043	21 39 28.8	9.471
9	17 38 9.82	2.8127	26 9 1.1	1.390	9	19 46 41.19	2.4956	21 29 56.7	9.599
10	17 40 58.49	2.8097	26 7 31.6	1.594	10	19 49 10.67	2.4869	21 20 16.9	9.725
11	17 43 46.98	2.8064	26 5 49.8	1.798	11	19 51 39.62	2.4783	21 10 29.7	9.848
12	17 46 35.26	2.8030	26 3 55.8	2.001	12	19 54 8.06	2.4696	21 0 35.1	9.971
13	17 49 23.34	2.7994	26 1 49.7	2.203	13	19 56 35.97	2.4608	20 50 33.2	10.091
14	17 52 11.19	2.7956	25 59 31.5	2.405	14	19 59 3.35	2.4520	20 40 24.2	10.208
15	17 54 58.81	2.7916	25 57 1.3	2.605	15	20 1 30.21	2.4433	20 30 8.2	10.324
16	17 57 46.18	2.7873	25 54 19.2	2.801	16	20 3 56.55	2.4347	20 19 45.3	10.438
17	18 0 33.29	2.7830	25 51 25.2	2.998	17	20 6 22.37	2.4259	20 9 15.7	10.549
18	18 3 20.14	2.7784	25 48 19.4	3.194	18	20 8 47.66	2.4172	19 58 39.4	10.659
19	18 6 6.70	2.7736	25 45 1.9	3.390	19	20 11 12.43	2.4085	19 47 56.6	10.767
20	18 8 52.97	2.7687	25 41 32.6	3.584	20	20 13 36.68	2.3998	19 37 7.3	10.873
21	18 11 38.94	2.7636	25 37 51.8	3.777	21	20 16 0.41	2.3913	19 26 11.8	10.977
22	18 14 24.60	2.7583	25 33 59.4	3.968	22	20 18 23.63	2.3827	19 15 10.1	11.078
23	18 17 9.93	2.7527	S.25 29 55.6	4.158	23	20 20 46.33	2.3739	S.19 4 2.4	11.178
	FRIDAY 26.					**SUNDAY 28.**			
0	18 19 54.92	2.7470	S.25 25 40.4	4.347	0	20 23 8.50	2.3653	S.18 52 48.8	11.276
1	18 22 39.57	2.7412	25 21 14.0	4.534	1	20 25 30.17	2.3569	18 41 29.3	11.372
2	18 25 23.87	2.7353	25 16 36.3	4.721	2	20 27 51.33	2.3484	18 30 4.2	11.465
3	18 28 7.80	2.7291	25 11 47.5	4.904	3	20 30 11.98	2.3399	18 18 33.5	11.557
4	18 30 51.36	2.7228	25 6 47.8	5.087	4	20 32 32.12	2.3315	18 6 57.3	11.648
5	18 33 34.54	2.7164	25 1 37.1	5.268	5	20 34 51.76	2.3232	17 55 15.7	11.737
6	18 36 17.33	2.7098	24 56 15.6	5.448	6	20 37 10.90	2.3148	17 43 28.9	11.823
7	18 38 59.72	2.7032	24 50 43.3	5.627	7	20 39 29.54	2.3066	17 31 36.9	11.908
8	18 41 41.71	2.6964	24 45 0.4	5.803	8	20 41 47.69	2.2983	17 19 40.0	11.990
9	18 44 23.29	2.6894	24 39 7.0	5.977	9	20 44 5.34	2.2902	17 7 38.1	12.071
10	18 47 4.44	2.6823	24 33 3.2	6.149	10	20 46 22.50	2.2819	16 55 31.5	12.150
11	18 49 45.16	2.6751	24 26 49.1	6.321	11	20 48 39.17	2.2738	16 43 20.1	12.228
12	18 52 25.45	2.6678	24 20 24.7	6.491	12	20 50 55.36	2.2658	16 31 4.2	12.305
13	18 55 5.29	2.6603	24 13 50.2	6.658	13	20 53 11.07	2.2579	16 18 43.8	12.376
14	18 57 44.68	2.6528	24 7 5.8	6.823	14	20 55 26.31	2.2501	16 6 19.1	12.448
15	19 0 23.62	2.6451	24 0 11.5	6.987	15	20 57 41.08	2.2422	15 53 50.1	12.518
16	19 3 2.09	2.6373	23 53 7.4	7.148	16	20 59 55.38	2.2344	15 41 16.9	12.587
17	19 5 40.10	2.6295	23 45 53.7	7.308	17	21 2 9.21	2.2267	15 28 39.7	12.653
18	19 8 17.63	2.6216	23 38 30.4	7.467	18	21 4 22.58	2.2191	15 15 58.5	12.718
19	19 10 54.69	2.6137	23 30 57.7	7.623	19	21 6 35.50	2.2115	15 3 13.5	12.782
20	19 13 31.27	2.6056	23 23 15.7	7.777	20	21 8 47.96	2.2040	14 50 24.7	12.843
21	19 16 7.36	2.5974	23 15 24.5	7.929	21	21 10 59.98	2.1966	14 37 32.3	12.903
22	19 18 42.96	2.5892	23 7 24.2	8.079	22	21 13 11.55	2.1892	14 24 36.3	12.962
23	19 21 18.06	2.5809	22 59 15.0	8.228	23	21 15 22.68	2.1819	14 11 36.9	13.018
24	19 23 52.67	2.5726	S.22 50 56.9	8.374	24	21 17 33.38	2.1747	S.13 58 34.2	13.073

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 29.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	21 17 33.38	[illegible]	S. 13 58 34.2	[illegible]
1	21 19 43.65	[illegible]	13 45 28.2	[illegible]
2	21 21 53.49	[illegible]	13 32 19.0	[illegible]
3	21 24 2.91	[illegible]	13 19 6.8	[illegible]
4	21 26 11.92	[illegible]	13 5 51.5	[illegible]
5	21 28 20.51	[illegible]	12 52 33.4	[illegible]
6	21 30 28.70	[illegible]	12 39 12.5	[illegible]
7	21 32 36.48	[illegible]	12 25 48.9	[illegible]
8	21 34 43.87	[illegible]	12 12 22.7	[illegible]
9	21 36 50.86	[illegible]	11 58 53.9	[illegible]
10	21 38 57.47	[illegible]	11 45 22.7	[illegible]
11	21 41 3.69	[illegible]	11 31 49.1	[illegible]
12	21 43 9.54	[illegible]	11 18 13.2	[illegible]
13	21 45 15.01	[illegible]	11 4 35.2	[illegible]
14	21 47 20.12	[illegible]	10 50 55.0	[illegible]
15	21 49 24.87	[illegible]	10 37 12.8	[illegible]
16	21 51 29.26	[illegible]	10 23 28.7	[illegible]
17	21 53 33.30	[illegible]	10 9 42.7	[illegible]
18	21 55 36.09	[illegible]	9 55 54.9	[illegible]
19	21 57 40.34	[illegible]	9 42 5.4	[illegible]
20	21 59 43.15	[illegible]	9 28 14.3	[illegible]
21	22 1 46.03	[illegible]	9 14 21.6	[illegible]
22	22 3 48.39	[illegible]	9 0 27.5	[illegible]
23	22 5 50.43	[illegible]	S. 8 46 31.9	[illegible]

TUESDAY 30.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	22 7 52.16	[illegible]	S. 8 32 35.0	[illegible]
1	22 9 53.58	[illegible]	8 18 36.8	[illegible]
2	22 11 54.69	[illegible]	8 4 37.5	[illegible]
3	22 13 55.50	[illegible]	7 50 37.0	[illegible]
4	22 15 56.02	[illegible]	7 36 35.5	[illegible]
5	22 17 56.25	[illegible]	7 22 33.0	[illegible]
6	22 19 56.20	[illegible]	7 8 29.6	[illegible]
7	22 21 55.87	[illegible]	6 54 25.3	[illegible]
8	22 23 55.27	[illegible]	6 40 20.3	[illegible]
9	22 25 54.40	[illegible]	6 26 14.6	[illegible]
10	22 27 53.26	[illegible]	6 12 8.2	[illegible]
11	22 29 51.87	[illegible]	5 58 1.2	[illegible]
12	22 31 50.23	[illegible]	5 43 53.7	[illegible]
13	22 33 48.35	[illegible]	5 29 45.6	[illegible]
14	22 35 46.22	[illegible]	5 15 37.5	[illegible]
15	22 37 43.86	[illegible]	5 1 28.8	[illegible]
16	22 39 41.26	[illegible]	4 47 19.9	[illegible]
17	22 41 38.44	[illegible]	4 33 10.8	[illegible]
18	22 43 35.41	[illegible]	4 19 1.5	[illegible]
19	22 45 32.16	[illegible]	4 4 52.2	[illegible]
20	22 47 28.70	[illegible]	3 50 42.8	[illegible]
21	22 49 25.03	[illegible]	3 36 33.5	[illegible]
22	22 51 21.16	[illegible]	3 22 24.2	[illegible]
23	22 53 17.10	[illegible]	3 8 15.1	[illegible]
24	22 55 12.86	[illegible]	S. 2 54 6.2	[illegible]

WEDNESDAY, DECEMBER 1.

Hour	Right Ascension	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	22 55 12.86	[illegible]	S. 2 54 6.2	[illegible]

PHASES OF THE MOON.

			d	h	m
☽	First Quarter	Nov.	1	2	36.9
○	Full Moon		8	21	50.0
☾	Last Quarter		17	2	2.0
●	New Moon		23	21	19.7
☽	First Quarter		30	15	14.5

			d	h
☾	Apogee	Nov.	10	21.4
☾	Perigee		24	2.4

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	88 38 22	2838	90 12 1	2853	91 45 20	2869	93 18 18	2884
	Saturn	W.	67 27 22	2551	69 7 24	2566	70 47 6	2580	72 26 29	2594
	Antares	W.	59 49 41	2487	61 31 13	2501	63 12 25	2515	64 53 17	2530
	α Pegasi	E.	47 3 24	2803	45 29 0	2837	43 55 20	2873	42 22 26	2910
	α Arietis	E.	88 9 48	2502	86 28 38	2517	84 47 48	2531	83 7 18	2546
2	Sun	W.	100 58 16	2961	102 29 18	2975	104 0 2	2990	105 30 27	3004
	Saturn	W.	80 38 38	2663	82 16 8	2675	83 53 21	2689	85 30 16	2701
	Antares	W.	73 12 42	2599	74 51 38	2613	76 30 15	2626	78 8 35	2639
	α Arietis	E.	74 49 48	2617	73 11 16	2630	71 33 2	2644	69 55 7	2657
	Aldebaran	E.	107 7 26	2663	105 29 57	2676	103 52 45	2689	102 15 50	2701
3	Sun	W.	112 58 13	3073	114 26 56	3086	115 55 23	3099	117 23 34	3111
	Saturn	W.	93 30 36	2764	95 5 51	2776	96 40 50	2788	98 15 34	2799
	Antares	W.	86 15 56	2701	87 52 35	2713	89 28 58	2724	91 5 6	2735
	α Aquilæ	W.	41 46 41	4319	42 53 16	4234	44 1 10	4158	45 10 16	4090
	α Arietis	E.	61 49 56	2722	60 13 45	2735	58 37 51	2747	57 2 13	2758
	Aldebaran	E.	94 15 14	2760	92 39 54	2772	91 4 49	2783	89 29 59	2794
4	Sun	W.	124 40 43	3173	126 7 25	3184	127 33 53	3195	129 0 8	3207
	Saturn	W.	106 5 33	2855	107 38 50	2865	109 11 54	2875	110 44 45	2885
	Antares	W.	99 2 10	2788	100 36 53	2798	102 11 24	2808	103 45 42	2817
	α Aquilæ	W.	51 10 7	3847	52 24 21	3812	53 39 11	3781	54 54 33	3753
	α Arietis	E.	49 7 56	2818	47 33 51	2828	46 0 0	2840	44 26 24	2851
	Aldebaran	E.	81 39 25	2848	80 6 0	2859	78 32 49	2869	76 59 51	2880
5	α Aquilæ	W.	61 17 43	3653	62 35 20	3639	63 53 12	3627	65 11 17	3616
	Fomalhaut	W.	36 52 58	4110	38 2 50	4033	39 13 57	3966	40 26 10	3907
	α Arietis	E.	36 42 3	2909	35 9 56	2921	33 38 4	2933	32 6 27	2946
	Aldebaran	E.	69 18 14	2929	67 46 32	2939	66 15 3	2949	64 43 46	2959
	Pollux	E.	111 22 42	2887	109 50 7	2895	108 17 42	2902	106 45 26	2910
6	α Aquilæ	W.	71 44 11	3580	73 3 7	3576	74 22 7	3574	75 41 10	3571
	Fomalhaut	W.	46 40 19	3695	47 57 11	3665	49 14 35	3639	50 32 27	3614
	Aldebaran	E.	57 10 24	3007	55 40 20	3017	54 10 28	3026	52 40 48	3037
	Pollux	E.	99 6 27	2946	97 35 6	2952	96 3 53	2958	94 32 48	2965
7	α Aquilæ	W.	82 16 49	3571	83 35 55	3572	84 55 0	3575	86 14 2	3577
	Fomalhaut	W.	57 7 28	3528	58 27 21	3516	59 47 27	3506	61 7 45	3496
	α Pegasi	W.	34 31 4	3492	35 51 37	3461	37 12 45	3434	38 34 23	3410
	Aldebaran	E.	45 15 45	3092	43 47 26	3105	42 19 22	3118	40 51 34	3132
	Pollux	E.	86 59 19	2995	85 29 0	3000	83 58 47	3005	82 28 41	3011
8	α Aquilæ	W.	92 48 10	3602	94 6 42	3608	95 25 8	3615	96 43 26	3623
	Fomalhaut	W.	67 51 36	3462	69 12 43	3457	70 33 55	3454	71 55 11	3450
	α Pegasi	W.	45 28 20	3328	46 51 59	3318	48 15 50	3308	49 39 52	3300
	Pollux	E.	74 59 50	3037	73 30 23	3041	72 1 1	3046	70 31 45	3051
	Regulus	E.	111 54 23	3018	110 24 32	3022	108 54 46	3026	107 25 5	3030
9	α Aquilæ	W.	103 12 39	3671	104 29 57	3682	105 47 3	3694	107 3 56	3709
	Fomalhaut	W.	78 42 13	3442	80 3 42	3442	81 25 11	3442	82 46 40	3443
	α Pegasi	W.	56 42 11	3270	58 6 58	3265	59 31 50	3262	60 56 46	3259

GREENWICH MEAN TIME

LUNAR DISTANCES

Day of the Month	Name and Direction of Objects		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	94 50 57	[illegible]	96 23 16	[illegible]	97 55 15	[illegible]	99 26 55	[illegible]
	Saturn	W.	74 5 32	[illegible]	75 44 16	[illegible]	77 22 42	[illegible]	79 0 49	[illegible]
	Antares	W.	66 33 49	[illegible]	68 14 1	[illegible]	69 53 54	[illegible]	71 33 28	[illegible]
	α Pegasi	E.	40 50 20	[illegible]	39 19 6	[illegible]	37 48 48	[illegible]	36 19 29	[illegible]
	α Arietis	E.	81 27 9	[illegible]	79 47 20	[illegible]	78 7 30	[illegible]	76 28 33	[illegible]
2	Sun	W.	107 0 35	[illegible]	108 30 25	[illegible]	109 59 58	[illegible]	111 29 14	[illegible]
	Saturn	W.	87 6 54	[illegible]	88 43 14	[illegible]	90 19 18	[illegible]	91 55 5	[illegible]
	Antares	W.	79 46 37	[illegible]	81 24 22	[illegible]	83 1 50	[illegible]	84 39 1	[illegible]
	α Arietis	E.	68 17 30	[illegible]	66 40 11	[illegible]	65 3 9	[illegible]	63 26 24	[illegible]
	Aldebaran	E.	100 39 11	[illegible]	99 2 48	[illegible]	97 26 41	[illegible]	95 50 50	[illegible]
3	Sun	W.	118 51 30	[illegible]	120 19 10	[illegible]	121 46 36	[illegible]	123 13 47	[illegible]
	Saturn	W.	99 50 3	[illegible]	101 24 17	[illegible]	102 58 17	[illegible]	104 32 2	[illegible]
	Antares	W.	92 41 0	[illegible]	94 16 39	[illegible]	95 52 3	[illegible]	97 27 13	[illegible]
	α Aquilae	W.	46 20 27	[illegible]	47 31 37	[illegible]	48 43 40	[illegible]	49 56 32	[illegible]
	α Arietis	E.	55 26 50	[illegible]	53 51 43	[illegible]	52 16 52	[illegible]	50 42 16	[illegible]
	Aldebaran	E.	87 55 23	[illegible]	86 21 2	[illegible]	84 46 56	[illegible]	83 13 4	[illegible]
4	Sun	W.	130 26 9	[illegible]	131 51 57	[illegible]	133 17 32	[illegible]	134 42 54	[illegible]
	Saturn	W.	112 17 23	[illegible]	113 49 48	[illegible]	115 22 1	[illegible]	116 54 1	[illegible]
	Antares	W.	105 19 48	[illegible]	106 53 41	[illegible]	108 27 23	[illegible]	110 0 54	[illegible]
	α Aquilae	W.	56 20 24	[illegible]	57 30 41	[illegible]	58 43 21	[illegible]	60 0 23	[illegible]
	α Arietis	E.	42 53 2	[illegible]	41 19 55	[illegible]	39 47 3	[illegible]	38 14 25	[illegible]
	Aldebaran	E.	75 27 6	[illegible]	73 54 34	[illegible]	72 22 15	[illegible]	70 50 8	[illegible]
5	α Aquilae	W.	66 23 34	[illegible]	67 48 1	[illegible]	69 6 37	[illegible]	70 25 21	[illegible]
	Fomalhaut	W.	41 [illegible] 23	[illegible]	42 53 29	[illegible]	44 8 24	[illegible]	45 24 2	[illegible]
	α Arietis	E.	[illegible] 35 7	[illegible]	29 4 4	[illegible]	27 33 18	[illegible]	26 2 52	[illegible]
	Aldebaran	E.	63 12 42	[illegible]	61 41 49	[illegible]	60 11 9	[illegible]	58 40 40	[illegible]
	Pollux	E.	105 13 20	[illegible]	103 41 23	[illegible]	102 9 36	[illegible]	100 37 57	[illegible]
6	α Aquilae	W.	77 0 16	[illegible]	78 19 23	[illegible]	79 38 32	[illegible]	[illegible] 57 41	[illegible]
	Fomalhaut	W.	51 50 46	[illegible]	53 9 28	[illegible]	54 28 30	[illegible]	55 47 51	[illegible]
	Aldebaran	E.	51 11 21	[illegible]	49 42 7	[illegible]	48 13 6	[illegible]	46 44 18	[illegible]
	Pollux	E.	93 1 51	[illegible]	91 31 2	[illegible]	90 0 [illegible]	[illegible]	88 29 46	[illegible]
7	α Aquilae	W.	[illegible] 33 1	[illegible]	[illegible] 51 56	[illegible]	90 10 46	[illegible]	91 29 31	[illegible]
	Fomalhaut	W.	62 28 14	[illegible]	63 48 53	[illegible]	65 9 40	[illegible]	66 30 35	[illegible]
	α Pegasi	W.	39 56 28	[illegible]	41 18 57	[illegible]	42 41 47	[illegible]	44 4 55	[illegible]
	Aldebaran	E.	39 24 2	[illegible]	37 56 48	[illegible]	36 [illegible] [illegible]	[illegible]	35 1 16	[illegible]
	Pollux	E.	[illegible] 55 42	[illegible]	[illegible] 28 [illegible]	[illegible]	77 59 3	[illegible]	76 [illegible] 23	[illegible]
8	α Aquilae	W.	[illegible] 1 [illegible]	[illegible]	[illegible] [illegible] 37	[illegible]	100 37 28	[illegible]	101 55 9	[illegible]
	Fomalhaut	W.	[illegible] 16 31	[illegible]	74 37 55	[illegible]	75 [illegible] 18	[illegible]	77 [illegible] 45	[illegible]
	α Pegasi	W.	51 4 4	[illegible]	52 [illegible] 25	[illegible]	53 52 54	[illegible]	55 17 [illegible]	[illegible]
	Pollux	E.	[illegible] 2 35	[illegible]	[illegible] 33 [illegible]	[illegible]	66 4 [illegible]	[illegible]	64 35 [illegible]	[illegible]
	Regulus	E.	105 55 [illegible]	[illegible]	[illegible] 25 [illegible]	[illegible]	102 56 31	[illegible]	101 27 9	[illegible]
9	α Aquilae	W.	[illegible] [illegible] 34	[illegible]	[illegible] 36 57	[illegible]	111 53 5	[illegible]	112 [illegible] [illegible]	[illegible]
	Fomalhaut	W.	84 [illegible] [illegible]	[illegible]	85 [illegible] [illegible]	[illegible]	86 51 [illegible]	[illegible]	[illegible] 12 [illegible]	[illegible]
	α Pegasi	W.	62 21 45	[illegible]	63 46 48	[illegible]	65 11 51	[illegible]	66 37 1	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Pollux	E.	63 6 49	3073	61 38 6	3077	60 9 28	3081	58 40 55	3084
	Regulus	E.	99 57 52	3048	98 28 39	3051	96 59 29	3055	95 30 24	3057
10	Fomalhaut	W.	89 33 49	3450	90 55 9	3452	92 16 27	3455	93 37 41	3458
	α Pegasi	W.	68 2 12	3247	69 27 25	3247	70 52 39	3245	72 17 55	3243
	α Arietis	W.	24 30 12	3156	25 57 14	3149	27 24 24	3143	28 51 42	3137
	Pollux	E.	51 19 20	3104	49 51 15	3108	48 23 15	3112	46 55 20	3115
	Regulus	E.	88 5 46	3069	86 36 59	3072	85 8 15	3073	83 39 33	3075
11	Fomalhaut	W.	100 22 55	3478	101 43 44	3482	103 4 28	3488	104 25 6	3494
	α Pegasi	W.	79 24 37	3238	80 50 1	3237	82 15 26	3236	83 40 52	3235
	α Arietis	W.	36 9 30	3121	37 37 14	3118	39 5 2	3115	40 32 53	3114
	Pollux	E.	39 36 55	3136	38 9 29	3141	36 42 9	3145	35 14 54	3151
	Regulus	E.	76 16 30	3081	74 47 57	3082	73 19 25	3082	71 50 53	3082
	Jupiter	E.	110 31 11	3164	109 4 19	3165	107 37 28	3165	106 10 37	3164
12	α Pegasi	W.	90 48 22	3230	92 13 56	3229	93 39 31	3227	95 5 8	3226
	α Arietis	W.	47 52 49	3101	49 20 58	3098	50 49 10	3095	52 17 26	3092
	Regulus	E.	64 28 11	3079	62 59 36	3078	61 30 59	3076	60 2 20	3074
	Jupiter	E.	98 56 9	3159	97 29 11	3158	96 2 11	3156	94 35 9	3153
	Spica	E.	118 31 13	3079	117 2 38	3078	115 34 1	3076	114 5 22	3073
13	α Pegasi	W.	102 13 37	3218	103 39 25	3216	105 5 15	3214	106 31 7	3213
	α Arietis	W.	59 39 45	3073	61 8 27	3069	62 37 15	3065	64 6 8	3059
	Aldebaran	W.	28 22 45	3312	29 46 43	3285	31 11 12	3261	32 36 9	3239
	Regulus	E.	52 38 27	3061	51 9 30	3058	49 40 29	3054	48 11 23	3050
	Jupiter	E.	87 19 11	3138	85 51 48	3134	84 24 20	3130	82 56 47	3126
	Spica	E.	106 41 19	3058	105 12 18	3055	103 43 13	3050	102 14 2	3046
	Venus	E.	112 56 2	3571	111 36 56	3566	110 17 45	3561	108 58 28	3555
14	α Arietis	W.	71 32 16	3029	73 1 53	3022	74 31 38	3015	76 1 32	3007
	Aldebaran	W.	39 46 39	3153	41 13 44	3138	42 41 8	3124	44 8 49	3110
	Regulus	E.	40 44 31	3026	39 14 50	3019	37 45 1	3014	36 15 5	3008
	Jupiter	E.	75 37 34	3099	74 9 23	3092	72 41 4	3085	71 12 36	3078
	Spica	E.	94 46 35	3018	93 16 44	3011	91 46 45	3004	90 16 37	2996
	Venus	E.	102 20 23	3522	101 0 23	3515	99 40 15	3506	98 19 58	3497
	Sun	E.	124 44 26	3415	123 22 27	3407	122 0 18	3399	120 38 0	3391
15	α Arietis	W.	83 33 36	2964	85 4 34	2954	86 35 45	2943	88 7 9	2933
	Aldebaran	W.	51 31 25	3042	53 0 46	3029	54 30 23	3015	56 0 17	3001
	Jupiter	E.	63 47 58	3037	62 18 31	3023	60 48 53	3018	59 19 3	3009
	Spica	E.	82 43 27	2954	81 12 16	2944	79 40 53	2934	78 9 17	2924
	Venus	E.	91 36 1	3450	90 14 41	3435	88 53 8	3425	87 31 23	3415
	Sun	E.	113 43 55	3341	112 20 31	3330	110 56 54	3319	109 33 4	3307
16	α Arietis	W.	95 47 37	2875	97 20 28	2862	98 53 36	2849	100 27 0	2835
	Aldebaran	W.	63 34 7	2931	65 5 47	2916	66 37 45	2901	68 10 2	2887
	Pollux	W.	21 32 32	3030	23 2 8	2997	24 32 24	2968	26 3 17	2940
	Jupiter	E.	51 46 45	2956	50 15 37	2944	48 44 14	2933	47 12 37	2920
	Spica	E.	70 27 48	2866	68 54 45	2852	67 21 25	2840	65 47 49	2826
	Venus	E.	80 39 7	3351	79 15 55	3337	77 52 26	3323	76 28 41	3307
	Sun	E.	102 30 20	3242	101 5 0	3228	99 39 24	3214	98 13 31	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Midnight.	P.L. of Diff.	XV^h.	P.L. of Diff.	XVIII^h.	P.L. of Diff.	XXI^h.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
9	Pollux	E.	57 12 26	[illegible]	55 44 3	[illegible]	54 15 44	[illegible]	52 47 30	[illegible]
	Regulus	E.	94 1 22	[illegible]	92 32 23	[illegible]	91 3 28	[illegible]	89 34 36	[illegible]
10	Fomalhaut	W.	94 58 52	[illegible]	96 19 59	[illegible]	97 41 2	[illegible]	99 2 1	[illegible]
	α Pegasi	W.	73 43 13	[illegible]	75 8 32	[illegible]	76 33 53	[illegible]	77 59 14	[illegible]
	α Arietis	W.	30 19 7	3131	31 46 37	[illegible]	33 14 11	[illegible]	34 41 49	[illegible]
	Pollux	E.	45 27 29	[illegible]	43 59 43	[illegible]	42 32 2	[illegible]	41 4 26	[illegible]
	Regulus	E.	82 10 53	[illegible]	80 42 15	[illegible]	79 13 39	[illegible]	77 45 4	[illegible]
11	Fomalhaut	W.	105 45 37	[illegible]	107 6 2	[illegible]	108 26 20	[illegible]	109 46 30	[illegible]
	α Pegasi	W.	85 6 20	[illegible]	86 31 48	[illegible]	87 57 18	[illegible]	89 22 49	[illegible]
	α Arietis	W.	42 0 46	[illegible]	43 28 42	[illegible]	44 56 41	[illegible]	46 24 43	[illegible]
	Pollux	E.	33 47 46	[illegible]	32 20 44	[illegible]	30 53 51	3171	29 27 7	[illegible]
	Regulus	E.	70 22 22	[illegible]	68 53 50	[illegible]	67 25 18	[illegible]	65 56 45	[illegible]
	Jupiter	E.	104 43 45	[illegible]	103 16 52	[illegible]	101 49 59	[illegible]	100 23 5	[illegible]
12	α Pegasi	W.	96 30 46	[illegible]	97 56 26	[illegible]	99 22 8	[illegible]	100 47 51	[illegible]
	α Arietis	W.	53 45 45	[illegible]	55 14 8	[illegible]	56 42 36	[illegible]	58 11 8	[illegible]
	Regulus	E.	58 33 3	[illegible]	57 4 55	[illegible]	55 36 9	[illegible]	54 7 20	[illegible]
	Jupiter	E.	93 8 4	3232	91 40 56	[illegible]	90 13 45	[illegible]	88 46 30	[illegible]
	Spica	E.	112 36 40	[illegible]	111 7 55	[illegible]	109 39 7	[illegible]	108 10 15	[illegible]
13	α Pegasi	W.	107 57 1	[illegible]	109 22 58	[illegible]	110 48 57	[illegible]	112 14 58	[illegible]
	α Arietis	W.	65 35 8	[illegible]	67 4 14	[illegible]	68 33 27	[illegible]	70 2 48	[illegible]
	Aldebaran	W.	34 1 32	[illegible]	35 27 18	[illegible]	36 53 25	[illegible]	38 19 52	[illegible]
	Regulus	E.	46 42 12	[illegible]	45 12 56	[illegible]	43 43 34	[illegible]	42 14 6	[illegible]
	Jupiter	E.	81 29 9	3111	80 1 25	3116	78 33 35	[illegible]	77 5 38	[illegible]
	Spica	E.	100 44 46	[illegible]	99 15 23	[illegible]	97 45 54	[illegible]	96 16 18	[illegible]
	Venus	E.	107 19 5	[illegible]	106 19 36	[illegible]	104 59 59	[illegible]	103 40 15	[illegible]
14	α Arietis	W.	77 31 36	[illegible]	79 1 50	[illegible]	80 32 14	[illegible]	82 2 49	[illegible]
	Aldebaran	W.	45 16 47	[illegible]	47 5 2	[illegible]	48 33 33	[illegible]	50 2 21	[illegible]
	Regulus	E.	34 45 2	[illegible]	33 14 51	[illegible]	31 44 31	[illegible]	30 14 3	[illegible]
	Jupiter	E.	69 44 0	[illegible]	68 15 14	[illegible]	66 46 19	[illegible]	65 17 14	[illegible]
	Spica	E.	88 46 19	[illegible]	87 15 52	[illegible]	85 45 14	[illegible]	84 14 26	[illegible]
	Venus	E.	96 52 31	[illegible]	95 35 55	[illegible]	94 18 8	[illegible]	92 57 10	[illegible]
	Sun	E.	119 15 33	[illegible]	117 52 55	[illegible]	116 30 7	[illegible]	115 7 7	[illegible]
15	α Arietis	W.	89 38 46	[illegible]	91 10 37	[illegible]	92 42 42	[illegible]	94 15 2	[illegible]
	Aldebaran	W.	57 33 28	[illegible]	59 0 5[illegible]	[illegible]	60 31 42	[illegible]	62 2 45	[illegible]
	Jupiter	E.	57 4[illegible] 1	[illegible]	56 18 47	[illegible]	54 48 2[illegible]	[illegible]	53 17 39	[illegible]
	Spica	E.	[illegible] 37 28	[illegible]	75 5 25	[illegible]	73 33 8	[illegible]	72 0 36	[illegible]
	Venus	E.	86 9 24	[illegible]	84 47 12	[illegible]	83 24 45	[illegible]	82 2 4	[illegible]
	Sun	E.	10[illegible] 9 1	[illegible]	106 44 43	[illegible]	105 20 11	[illegible]	103 55 23	[illegible]
16	α Arietis	W.	102 0 42	[illegible]	103 34 42	[illegible]	105 9 0	[illegible]	106 43 37	[illegible]
	Aldebaran	W.	69 42 [illegible]	[illegible]	71 15 34	[illegible]	72 48 50	[illegible]	74 22 26	[illegible]
	Pollux	W.	27 14 45	[illegible]	28 46 46	[illegible]	30 [illegible]	[illegible]	32 12 22	[illegible]
	Jupiter	E.	45 41 44	[illegible]	44 8 [illegible]	[illegible]	42 36 13	[illegible]	41 3 35	[illegible]
	Spica	E.	64 13 55	[illegible]	62 37 41	[illegible]	61 5 13	[illegible]	59 30 24	[illegible]
	Venus	E.	75 4 1[illegible]	[illegible]	73 4[illegible] 1[illegible]	[illegible]	72 15 40	[illegible]	70 50 44	[illegible]
	Sun	E.	96 47 30	[illegible]	95 21 51	[illegible]	93 54 3	[illegible]	92 26 55	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Aldebaran	W.	75 56 23	2808	77 30 41	2791	79 5 21	2775	80 40 22	2757
	Pollux	W.	33 45 55	2821	35 19 56	2799	36 54 25	2779	38 29 21	2758
	JUPITER	E.	39 30 41	2861	37 57 32	2849	36 24 8	2838	34 50 29	2826
	Spica	E.	57 55 15	2754	56 19 47	2738	54 43 58	2723	53 7 49	2707
	VENUS	E.	69 25 28	3229	67 59 53	3212	66 33 58	3194	65 7 42	3178
	SUN	E.	90 59 28	3118	89 31 40	3101	88 3 32	3083	86 35 2	3066
18	Aldebaran	W.	88 41 10	2670	90 18 31	2653	91 56 14	2635	93 34 22	2616
	Pollux	W.	46 30 48	2656	48 8 27	2636	49 46 33	2616	51 25 6	2596
	Spica	E.	45 1 35	2624	43 23 13	2607	41 44 27	2590	40 5 18	2572
	VENUS	E.	57 51 7	3087	56 22 42	3069	54 53 55	3051	53 24 45	3032
	SUN	E.	79 6 59	2973	77 36 13	2954	76 5 2	2934	74 33 26	2915
19	Aldebaran	W.	101 51 15	2526	103 31 52	2507	105 12 55	2489	106 54 23	2472
	Pollux	W.	59 44 47	2495	61 26 7	2476	63 7 54	2456	64 50 9	2436
	VENUS	E.	45 53 10	2940	44 21 42	2923	42 49 52	2905	41 17 39	2887
	SUN	E.	66 49 11	2815	65 15 2	2794	63 40 28	2775	62 5 27	2755
20	Pollux	W.	73 28 26	2339	75 13 29	2320	76 58 59	2301	78 44 57	2283
	Regulus	W.	36 27 16	2329	38 12 33	2309	39 58 19	2289	41 44 34	2271
	SUN	E.	54 3 46	2656	52 26 7	2637	50 48 2	2618	49 9 32	2600
21	Pollux	W.	87 41 20	2196	89 29 53	2180	91 18 51	2165	93 8 12	2149
	Regulus	W.	50 42 36	2182	52 31 31	2165	54 20 51	2149	56 10 36	2134
	SUN	E.	40 50 55	2515	39 10 2	2499	37 28 48	2485	35 47 14	2472
25	SUN	W.	16 10 56	2417	17 54 7	2401	19 37 40	2391	21 21 28	2384
	Fomalhaut	E.	73 1 7	2412	71 17 50	2429	69 34 57	2448	67 52 30	2469
	α Pegasi	E.	93 34 29	2134	91 44 21	2140	89 54 23	2147	88 4 36	2156
26	SUN	W.	30 1 1	2401	31 44 35	2409	33 27 57	2419	35 11 4	2430
	Fomalhaut	E.	59 28 35	2607	57 49 49	2642	56 11 51	2681	54 34 45	2723
	α Pegasi	E.	78 59 25	2214	77 11 18	2228	75 23 32	2244	73 36 10	2260
	α Arietis	E.	121 36 21	2072	119 44 38	2084	117 53 14	2096	116 2 8	2109
27	SUN	W.	43 42 18	2499	45 23 32	2515	47 4 25	2531	48 44 55	2548
	α Pegasi	E.	64 45 50	2357	63 1 13	2380	61 17 9	2403	59 33 38	2427
	α Arietis	E.	106 51 46	2180	105 2 48	2195	103 14 13	2212	101 26 3	2228
28	SUN	W.	57 1 26	2638	58 39 30	2657	60 17 8	2675	61 54 21	2695
	α Pegasi	E.	51 5 17	2568	49 25 38	2601	47 46 44	2635	46 8 37	2672
	α Arietis	E.	92 31 25	2315	90 45 47	2332	89 0 34	2350	87 15 47	2368
	Aldebaran	E.	124 39 8	2383	122 55 9	2398	121 11 32	2413	119 28 16	2429
29	SUN	W.	69 54 1	2792	71 28 40	2811	73 2 54	2830	74 36 43	2849
	α Arietis	E.	78 38 31	2461	76 56 23	2479	75 14 40	2498	73 33 24	2516
	Aldebaran	E.	110 57 37	2511	109 16 39	2527	107 36 4	2545	105 55 53	2561
30	SUN	W.	82 19 38	2944	83 51 1	2962	85 22 1	2980	86 52 39	2998
	α Aquilæ	W.	39 19 3	4425	40 23 59	4321	41 30 32	4228	42 38 32	4145
	α Arietis	E.	65 13 20	2607	63 34 34	2624	61 56 11	2641	60 18 12	2658
	Aldebaran	E.	97 40 47	2646	96 2 55	2663	94 25 25	2680	92 48 18	2695

GREENWICH MEAN TIME.

LUNAR DISTANCES.

[illegible]	Name and Direction of Object.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
17	Aldebaran	W.	82 15 4[illegible]	[illegible]	83 51 32	[illegible]	85 27 41	[illegible]	87 4 14	[illegible]
	Pollux	W.	40 4 44	[illegible]	41 40 34	[illegible]	43 16 52	[illegible]	44 53 36	[illegible]
	Jupiter	E.	33 16 35	[illegible]	31 42 27	[illegible]	30 8 7	[illegible]	28 33 36	[illegible]
	Spica	E.	51 31 1[illegible]	[illegible]	49 54 26	[illegible]	48 17 11	[illegible]	46 39 34	[illegible]
	Venus	E.	63 41 6	[illegible]	62 14 9	[illegible]	60 46 50	[illegible]	59 19 10	[illegible]
	Sun	E.	85 6 11	[illegible]	83 36 57	[illegible]	82 7 21	[illegible]	80 37 22	[illegible]
18	Aldebaran	W.	95 12 55	[illegible]	96 51 53	[illegible]	98 31 15	[illegible]	100 11 3	[illegible]
	Pollux	W.	53 4 7	[illegible]	54 43 36	[illegible]	56 23 32	[illegible]	58 3 56	[illegible]
	Spica	E.	38 25 45	[illegible]	36 45 48	[illegible]	35 5 27	[illegible]	33 24 42	[illegible]
	Venus	E.	51 55 12	[illegible]	50 25 16	[illegible]	48 54 57	[illegible]	47 24 15	[illegible]
	Sun	E.	73 1 26	[illegible]	71 29 1	[illegible]	69 56 10	[illegible]	68 22 53	[illegible]
19	Aldebaran	W.	108 36 16	[illegible]	110 18 34	[illegible]	112 1 17	[illegible]	113 44 24	[illegible]
	Pollux	W.	66 32 52	[illegible]	68 16 3	[illegible]	69 59 43	[illegible]	71 43 51	[illegible]
	Venus	E.	39 45 4	[illegible]	38 12 8	[illegible]	36 38 52	[illegible]	35 5 17	[illegible]
	Sun	E.	60 30 0	[illegible]	58 54 6	[illegible]	57 17 46	[illegible]	55 40 59	[illegible]
20	Pollux	W.	80 31 21	[illegible]	82 19 12	[illegible]	84 5 29	[illegible]	85 53 12	[illegible]
	Regulus	W.	43 31 16	[illegible]	45 18 26	[illegible]	47 6 3	[illegible]	48 54 7	[illegible]
	Sun	E.	47 30 37	[illegible]	45 51 17	[illegible]	44 11 33	[illegible]	42 31 25	[illegible]
21	Pollux	W.	94 57 56	[illegible]	96 48 2	[illegible]	98 38 30	[illegible]	100 29 18	[illegible]
	Regulus	W.	58 0 44	[illegible]	59 51 15	[illegible]	61 42 9	[illegible]	63 33 24	[illegible]
	Sun	E.	34 5 21	[illegible]	32 23 11	[illegible]	30 40 44	[illegible]	28 58 3	[illegible]
25	Sun	W.	23 5 25	[illegible]	24 49 25	[illegible]	26 33 23	[illegible]	28 17 16	[illegible]
	Fomalhaut	E.	66 10 33	[illegible]	64 29 8	[illegible]	62 48 18	[illegible]	61 8 6	[illegible]
	α Pegasi	E.	86 15 2	[illegible]	84 25 43	[illegible]	82 36 39	[illegible]	80 47 53	[illegible]
26	Sun	W.	36 53 56	[illegible]	38 36 30	[illegible]	40 18 46	[illegible]	42 0 42	[illegible]
	Fomalhaut	E.	52 55 36	[illegible]	51 23 27	[illegible]	49 49 22	[illegible]	48 16 27	[illegible]
	α Pegasi	E.	71 49 12	[illegible]	70 2 19	[illegible]	68 16 34	[illegible]	66 30 57	[illegible]
	α Arietis	E.	114 11 22	[illegible]	112 20 56	[illegible]	110 30 51	[illegible]	108 41 7	[illegible]
27	Sun	W.	50 25 2	[illegible]	52 4 45	[illegible]	53 44 3	[illegible]	55 22 57	[illegible]
	α Pegasi	E.	57 50 42	[illegible]	56 8 23	[illegible]	54 26 41	[illegible]	52 45 39	[illegible]
	α Arietis	E.	99 35 17	[illegible]	97 50 56	[illegible]	96 4 0	[illegible]	94 17 30	[illegible]
28	Sun	W.	63 31 8	[illegible]	65 7 30	[illegible]	66 43 26	[illegible]	68 18 56	[illegible]
	α Pegasi	E.	44 31 1[illegible]	[illegible]	42 54 53	[illegible]	41 19 21	[illegible]	39 44 46	[illegible]
	α Arietis	E.	85 31 2[illegible]	[illegible]	83 47 33	[illegible]	82 4 6	[illegible]	80 21 5	[illegible]
	Aldebaran	E.	117 45 21	[illegible]	116 2 52	[illegible]	114 20 44	[illegible]	112 38 59	[illegible]
29	Sun	W.	76 10 7	[illegible]	77 43 6	[illegible]	79 15 41	[illegible]	80 47 51	[illegible]
	α Arietis	E.	71 52 31	[illegible]	70 12 8	[illegible]	68 32 7	[illegible]	66 52 31	[illegible]
	Aldebaran	E.	104 16 5	[illegible]	102 36 41	[illegible]	100 57 40	[illegible]	99 19 2	[illegible]
30	Sun	W.	[illegible] 22 54	[illegible]	8[illegible] 52 47	[illegible]	91 22 19	[illegible]	92 51 29	[illegible]
	α Aquilæ	W.	43 47 [illegible]	[illegible]	44 58 17	[illegible]	46 9 47	[illegible]	47 22 12	[illegible]
	α Arietis	E.	5[illegible] 4[illegible] [illegible]	[illegible]	5[illegible] 3 21	[illegible]	55 26 33	[illegible]	53 50 5	[illegible]
	Aldebaran	E.	91 11 32	[illegible]	8[illegible] 35 [illegible]	[illegible]	87 57 6	[illegible]	86 23 25	[illegible]

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	Apparent Declination.	Diff. for 1 Hour.	Semi-diameter.	Sidereal Time of Semi-diameter Passing Meridian.	Equation of Time, to be Subtracted from / Added to Apparent Time.	Diff. for 1 Hour.
		h m s	s	° ′ ″	″	′ ″	s	m s	s
Wed.	1	16 31 45.60	10.814	S. 21 54 15.8	−22.74	16 16.00	70.32	10 37.26	0.954
Thur.	2	16 36 5.43	10.838	22 3 9.0	21.68	16 16.15	70.41	10 14.05	0.979
Frid.	3	16 40 25.85	10.862	22 11 36.7	20.62	16 16.30	70.49	9 50.26	1.003
Sat.	4	16 44 46.83	10.885	22 19 38.6	−19.54	16 16.44	70.57	9 25.90	1.026
SUN.	5	16 49 8.36	10.908	22 27 14.5	18.45	16 16.58	70.64	9 0.99	1.048
Mon.	6	16 53 30.41	10.929	22 34 24.1	17.35	16 16.71	70.71	8 35.57	1.069
Tues.	7	16 57 52.96	10.949	22 41 7.2	−16.24	16 16.84	70.78	8 9.65	1.090
Wed.	8	17 2 15.98	10.968	22 47 23.6	15.12	16 16.96	70.84	7 43.26	1.109
Thur.	9	17 6 39.45	10.987	22 53 13.2	14.00	16 17.08	70.90	7 16.42	1.127
Frid.	10	17 11 3.35	11.004	22 58 35.6	−12.87	16 17.19	70.96	6 49.16	1.144
Sat.	11	17 15 27.65	11.020	23 3 30.9	11.73	16 17.29	71.01	6 21.49	1.160
SUN.	12	17 19 52.32	11.035	23 7 58.7	10.58	16 17.39	71.05	5 53.45	1.175
Mon.	13	17 24 17.34	11.049	23 11 58.8	− 9.42	16 17.48	71.09	5 25.07	1.189
Tues.	14	17 28 42.69	11.061	23 15 31.3	8.27	16 17.57	71.13	4 56.36	1.201
Wed.	15	17 33 8.31	11.073	23 18 36.0	7.11	16 17.65	71.16	4 27.37	1.213
Thur.	16	17 37 34.20	11.083	23 21 12.6	− 5.94	16 17.72	71.19	3 58.13	1.223
Frid.	17	17 42 0.32	11.092	23 23 21.2	4.77	16 17.79	71.22	3 28.65	1.232
Sat.	18	17 46 26.61	11.099	23 25 1.6	3.60	16 17.86	71.24	2 58.99	1.239
SUN.	19	17 50 53.07	11.105	23 26 13.8	− 2.42	16 17.92	71.25	2 29.18	1.245
Mon.	20	17 55 19.65	11.109	23 26 57.6	1.24	16 17.98	71.26	1 59.24	1.249
Tues.	21	17 59 46.30	11.111	23 27 13.2	− 0.06	16 18.03	71.27	1 29.22	1.251
Wed.	22	18 4 13.00	11.112	23 27 0.4	+ 1.13	16 18.08	71.27	0 59.17	1.252
Thur.	23	18 8 39.70	11.112	23 26 19.2	2.31	16 18.13	71.27	0 29.11	1.252
Frid.	24	18 13 6.37	11.110	23 25 9.7	3.49	16 18.17	71.26	0 0.92	1.250
Sat.	25	18 17 32.96	11.106	23 23 31.9	+ 4.66	16 18.21	71.25	0 30.87	1.246
SUN.	26	18 21 59.44	11.100	23 21 25.9	5.84	16 18.25	71.23	1 0.71	1.240
Mon.	27	18 26 25.77	11.093	23 18 51.7	7.01	16 18.28	71.21	1 30.40	1.233
Tues.	28	18 30 51.91	11.084	23 15 49.4	+ 8.18	16 18.31	71.19	1 59.90	1.224
Wed.	29	18 35 17.83	11.074	23 12 19.1	9.34	16 18.33	71.16	2 29.18	1.214
Thur.	30	18 39 43.48	11.062	23 8 21.0	10.50	16 18.35	71.12	2 58.19	1.202
Frid.	31	18 44 8.84	11.050	23 3 55.1	11.66	16 18.36	71.08	3 26.92	1.190
Sat.	32	18 48 33.88	11.037	S. 22 59 1.6	+12.81	16 18.37	71.04	3 55.32	1.177

NOTE.—The mean time of semidiameter passing may be found by subtracting 0s.19 from the sidereal time.
The sign − prefixed to the hourly change of declination indicates that south declinations are increasing; the sign + indicates that south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S Apparent Right Ascension.	Diff. for 1 Hour.	THE SUN'S Apparent Declination.	Diff. for 1 Hour.	Equation of Time, to be Added to / Subtracted from Mean Time.	Diff. for 1 Hour.	Sidereal Time, or Right Ascension of Mean Sun.
		h m s	s	° ′ ″	″	m s	s	h m s
Wed.	1	16 31 47.51	10.811	S. 21 54 19.8	−22.73	10 37.09	0.953	16 42 24.60
Thur.	2	16 36 7.28	10.836	22 3 12.7	21.67	10 13.88	0.978	16 46 21.16
Frid.	3	16 40 27.63	10.860	22 11 40.1	20.60	9 50.09	1.003	16 50 17.72
Sat.	4	16 44 48.54	10.883	22 19 41.7	−19.52	9 25.74	1.026	16 54 14.28
SUN.	5	16 49 10.00	10.905	22 27 17.2	18.43	9 0.84	1.048	16 58 10.84
Mon.	6	16 53 31.98	10.926	22 34 26.6	17.33	8 35.42	1.069	17 2 7.40
Tues.	7	16 57 54.45	10.946	22 41 9.4	−16.23	8 9.50	1.090	17 6 3.95
Wed.	8	17 2 17.39	10.965	22 47 25.6	15.12	7 43.12	1.109	17 10 0.51
Thur.	9	17 6 40.78	10.984	22 53 14.9	13.99	7 16.29	1.127	17 13 57.07
Frid.	10	17 11 4.60	11.001	22 58 37.1	−12.86	6 49.03	1.144	17 17 53.63
Sat.	11	17 15 28.82	11.017	23 3 32.1	11.72	6 21.37	1.160	17 21 50.19
SUN.	12	17 19 53.40	11.032	23 7 59.7	10.57	5 53.34	1.175	17 25 46.74
Mon.	13	17 24 18.34	11.046	23 11 59.7	− 9.42	5 24.96	1.189	17 29 43.30
Tues.	14	17 28 43.59	11.059	23 15 32.0	8.26	4 56.27	1.201	17 33 39.86
Wed.	15	17 33 9.13	11.070	23 18 36.5	7.10	4 27.29	1.213	17 37 36.42
Thur.	16	17 37 34.93	11.080	23 21 13.0	− 5.94	3 58.05	1.223	17 41 32.98
Frid.	17	17 42 0.96	11.088	23 23 21.5	4.77	3 28.58	1.232	17 45 29.54
Sat.	18	17 46 27.16	11.095	23 25 1.8	3.59	2 58.93	1.239	17 49 26.10
SUN.	19	17 50 53.53	11.101	23 26 13.9	− 2.41	2 29.13	1.244	17 53 22.65
Mon.	20	17 55 20.01	11.105	23 26 57.7	1.24	1 59.20	1.248	17 57 19.21
Tues.	21	17 59 46.58	11.108	23 27 13.2	− 0.06	1 29.19	1.251	18 1 15.77
Wed.	22	18 4 13.18	11.109	23 27 0.4	+ 1.12	0 59.15	1.252	18 5 12.33
Thur.	23	18 8 39.79	11.108	23 26 19.2	2.30	0 29.10	1.251	18 9 8.89
Frid.	24	18 13 6.37	11.106	23 25 9.7	3.48	0 0.92	1.249	18 13 5.45
Sat.	25	18 17 32.86	11.102	23 23 32.0	+ 4.66	0 30.86	1.245	18 17 2.01
SUN.	26	18 21 59.25	11.096	23 21 26.0	5.84	1 0.69	1.240	18 20 58.56
Mon.	27	18 26 25.49	11.089	23 18 51.9	7.01	1 30.37	1.233	18 24 55.12
Tues.	28	18 30 51.54	11.080	23 15 49.7	+ 8.18	1 59.86	1.224	18 28 51.68
Wed.	29	18 35 17.36	11.071	23 12 19.5	9.34	2 29.12	1.214	18 32 48.24
Thur.	30	18 39 42.93	11.060	23 8 21.5	10.50	2 58.13	1.203	18 36 44.80
Frid.	31	18 44 8.2[illegible]	11.048	23 3 55.8	11.65	3 26.85	1.190	18 40 41.36
Sat.	32	18 48 33.15	[illegible]	S. 22 59 2.4	+12.79	3 55.24	1.176	18 44 37.92

NOTE.—The [illegible] for apparent noon.
The sign [illegible] south declinations are increasing, the sign [illegible] are decreasing.

Diff. for 1 Hour
+ 9s.8565
(Table III.)

AT GREENWICH MEAN NOON.

Day of the Month.	Day of the Year.	THE SUN'S TRUE LONGITUDE. λ	THE SUN'S TRUE LONGITUDE. λ'	Diff. for 1 Hour.	LATITUDE.	Logarithm of the Radius Vector of the Earth.	Diff. for 1 Hour.	Mean Time of Sidereal Noon.
		° ′ ″	′ ″	″	″			h m s
1	335	249 37 11.6	36 11.4	152.16	+ 0.50	9.9937275	−28.7	7 16 23.71
2	336	250 38 3.9	37 3.5	152.20	0.59	9.9936594	27.9	7 12 27.79
3	337	251 38 57.0	37 56.4	152.23	0.66	9.9935934	27.0	7 8 31.88
4	338	252 39 50.9	38 50.2	152.26	+ 0.70	9.9935296	−26.1	7 4 35.97
5	339	253 40 45.5	39 44.6	152.29	0.71	9.9934680	25.1	7 0 40.06
6	340	254 41 41.0	40 39.9	152.33	0.69	9.9934089	24.1	6 56 44.15
7	341	255 42 37.2	41 35.9	152.36	+ 0.63	9.9933523	−23.1	6 52 48.23
8	342	256 43 34.2	42 32.7	152.40	0.56	9.9932982	22.0	6 48 52.32
9	343	257 44 32.0	43 30.4	152.43	0.46	9.9932468	20.9	6 44 56.41
10	344	258 45 30.7	44 28.9	152.47	+ 0.34	9.9931981	−19.8	6 41 0.50
11	345	259 46 30.4	45 28.4	152.51	0.21	9.9931521	18.6	6 37 4.58
12	346	260 47 30.9	46 28.7	152.54	+ 0.08	9.9931087	17.5	6 33 8.67
13	347	261 48 32.3	47 29.9	152.58	− 0.05	9.9930678	−16.5	6 29 12.76
14	348	262 49 34.7	48 32.1	152.62	0.17	9.9930294	15.5	6 25 16.85
15	349	263 50 38.1	49 35.3	152.66	0.27	9.9929934	14.5	6 21 20.93
16	350	264 51 42.4	50 39.5	152.70	− 0.36	9.9929598	−13.6	6 17 25.02
17	351	265 52 47.6	51 44.5	152.74	0.41	9.9929283	12.7	6 13 29.11
18	352	266 53 53.5	52 50.2	152.77	0.44	9.9928988	11.9	6 9 33.20
19	353	267 55 0.3	53 56.8	152.80	− 0.44	9.9928713	−11.1	6 5 37.28
20	354	268 56 7.9	55 4.2	152.83	0.41	9.9928456	10.3	6 1 41.37
21	355	269 57 16.0	56 12.1	152.85	0.35	9.9928217	9.6	5 57 45.46
22	356	270 58 24.8	57 20.7	152.87	− 0.26	9.9927995	− 8.9	5 53 49.54
23	357	271 59 34.0	58 29.7	152.89	0.15	9.9927789	8.2	5 49 53.63
24	358	272 60 43.6	59 39.1	152.91	− 0.03	9.9927599	7.5	5 45 57.72
25	359	274 1 53.5	0 48.8	152.92	+ 0.10	9.9927425	− 6.9	5 42 1.81
26	360	275 3 3.5	1 58.6	152.92	0.23	9.9927269	6.2	5 38 5.89
27	361	276 4 13.6	3 8.5	152.92	0.36	9.9927130	5.5	5 34 9.98
28	362	277 5 23.8	4 18.6	152.92	+ 0.48	9.9927009	− 4.7	5 30 14.07
29	363	278 6 33.7	5 28.3	152.92	0.57	9.9926906	3.8	5 26 18.16
30	364	279 7 43.6	6 38.0	152.91	0.64	9.9926823	2.9	5 22 22.24
31	365	280 8 53.2	7 47.4	152.90	0.68	9.9926762	2.0	5 18 26.33
32	366	281 10 2.5	8 56.5	152.88	+ 0.70	9.9926725	− 1.1	5 14 30.42

NOTE.—The numbers in column λ correspond to the true equinox of the date; in column λ' to the mean equinox of January 0d.0.

Diff. for 1 Hour, −9s.8296. (Table II.)

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month	Semidiameter: Noon	Semidiameter: Midnight	Horizontal Parallax: Noon	Diff. for 1 Hour	Horizontal Parallax: Midnight	Diff. for 1 Hour	Upper Transit: Meridian of Greenwich	Diff. for 1 Hour	Age: Noon
	′ ″	′ ″	′ ″	″	′ ″	″	h m	m	d
1	15 26.3	15 20.0	56 32.8	-2.00	56 9.6	-1.86	6 24.0	1.80	7.1
2	15 14.1	15 8.8	55 48.2	1.70	55 28.8	1.53	7 6.6	1.76	8.1
3	15 4.1	14 59.9	55 11.4	1.37	54 56.0	1.20	7 48.8	1.77	9.1
4	14 56.2	14 53.1	54 42.5	-1.05	54 30.9	-0.89	8 31.7	1.81	10.1
5	14 50.4	14 48.3	54 21.2	0.73	54 13.3	0.59	9 16.0	1.89	11.1
6	14 46.6	14 45.3	54 7.0	0.46	54 2.3	0.33	10 2.3	1.97	12.1
7	14 44.4	14 43.9	53 59.0	-0.21	53 57.2	-0.10	10 50.7	2.05	13.1
8	14 43.8	14 44.0	53 56.7	+0.01	53 57.5	+0.12	11 40.6	2.10	14.1
9	14 44.6	14 45.5	53 59.6	0.23	54 2.9	0.33	12 31.2	2.11	15.1
10	14 46.7	14 48.3	54 7.4	+0.43	54 13.3	+0.54	13 21.4	2.07	16.1
11	14 50.2	14 52.5	54 20.4	0.65	54 28.9	0.77	14 10.3	2.00	17.1
12	14 55.2	14 58.3	54 38.8	0.89	54 50.2	1.02	14 57.4	1.92	18.1
13	15 1.9	15 5.8	55 3.2	+1.15	55 17.7	+1.28	15 42.8	1.86	19.1
14	15 10.3	15 15.1	55 34.0	1.43	55 51.9	1.56	16 26.9	1.82	20.1
15	15 20.4	15 26.2	56 11.4	1.70	56 32.6	1.83	17 10.7	1.83	21.1
16	15 32.4	15 38.9	56 55.2	+1.95	57 19.3	+2.05	17 55.2	1.89	22.1
17	15 45.8	15 52.8	57 44.4	2.13	58 10.3	2.18	18 41.8	2.00	23.1
18	16 0.0	16 7.2	58 36.7	2.20	59 3.0	2.17	19 31.8	2.17	24.1
19	16 14.2	16 20.8	59 28.7	+2.09	59 53.1	+1.96	20 26.5	2.39	25.1
20	16 27.0	16 32.4	60 15.7	1.78	60 35.7	1.54	21 26.5	2.61	26.1
21	16 37.0	16 40.5	60 52.6	1.24	61 5.5	0.89	22 31.2	2.76	27.1
22	16 42.8	16 43.9	61 14.0	+0.51	61 17.8	+0.11	23 37.9	2.78	28.1
23	16 43.6	16 41.9	61 16.7	-0.30	61 10.6	-0.71	6		29.1
24	16 38.9	16 34.7	60 59.6	1.10	60 44.1	1.46	0 43.4	2.65	0.7
25	16 29.4	16 23.1	60 24.6	-1.77	60 1.7	-2.08	1 44.6	2.44	1.7
26	16 16.2	16 8.7	59 36.1	2.22	59 8.5	2.35	2 40.4	2.22	2.7
27	16 0.9	15 52.8	58 39.8	2.42	58 10.4	2.44	3 31.2	2.03	3.7
28	15 44.9	15 37.1	57 41.2	-2.40	57 12.7	-2.33	4 18.2	1.89	4.7
29	15 29.7	15 22.6	56 45.3	2.22	56 19.4	2.08	5 2.6	1.82	5.7
30	15 16.1	15 10.1	55 55.4	1.91	55 33.5	1.73	5 45.8	1.79	6.7
31	15 4.8	15 0.1	55 13.9	1.54	54 56.5	1.35	6 29.0	1.81	7.7
32	14 56.0	14 52.6	54 41.6	-1.14	54 29.1	-0.94	7 13.1	1.87	8.7

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	WEDNESDAY 1.					**FRIDAY 3.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	22 55 12.86	1.9277	S. 2 54 6.2	14.147	0	0 25 42.98	1.8727	N. 8 4 31.4	12.998
1	22 57 8.43	1.9247	2 39 57.5	14.142	1	0 27 35.36	1.8733	8 17 30.0	12.956
2	22 59 3.82	1.9218	2 25 49.2	14.136	2	0 29 27.77	1.8739	8 30 26.1	12.912
3	23 0 59.04	1.9189	2 11 41.2	14.129	3	0 31 20.23	1.8747	8 43 19.5	12.868
4	23 2 54.09	1.9161	1 57 33.7	14.122	4	0 33 12.74	1.8756	8 56 10.3	12.825
5	23 4 48.97	1.9134	1 43 26.6	14.113	5	0 35 5.30	1.8765	9 8 58.5	12.780
6	23 6 43.70	1.9108	1 29 20.1	14.104	6	0 36 57.92	1.8774	9 21 43.9	12.734
7	23 8 38.27	1.9083	1 15 14.1	14.094	7	0 38 50.59	1.8784	9 34 26.6	12.688
8	23 10 32.70	1.9059	1 1 8.8	14.083	8	0 40 43.33	1.8795	9 47 6.4	12.640
9	23 12 26.98	1.9036	0 47 4.1	14.072	9	0 42 36.13	1.8806	9 59 43.4	12.592
10	23 14 21.13	1.9013	0 33 0.2	14.058	10	0 44 29.00	1.8818	10 12 17.5	12.544
11	23 16 15.14	1.8991	0 18 57.1	14.045	11	0 46 21.95	1.8831	10 24 48.7	12.496
12	23 18 9.02	1.8970	S. 0 4 54.8	14.031	12	0 48 14.97	1.8843	10 37 17.0	12.446
13	23 20 2.78	1.8950	N. 0 9 6.6	14.016	13	0 50 8.07	1.8857	10 49 42.2	12.394
14	23 21 56.42	1.8931	0 23 7.1	14.000	14	0 52 1.26	1.8872	11 2 4.3	12.343
15	23 23 49.95	1.8913	0 37 6.6	13.983	15	0 53 54.54	1.8887	11 14 23.3	12.291
16	23 25 43.37	1.8895	0 51 5.0	13.965	16	0 55 47.90	1.8902	11 26 39.2	12.238
17	23 27 36.69	1.8878	1 5 2.4	13.947	17	0 57 41.36	1.8918	11 38 51.9	12.184
18	23 29 29.91	1.8862	1 18 58.7	13.928	18	0 59 34.92	1.8935	11 51 1.3	12.130
19	23 31 23.03	1.8846	1 32 53.8	13.908	19	1 1 28.58	1.8953	12 3 7.5	12.075
20	23 33 16.06	1.8832	1 46 47.6	13.887	20	1 3 22.35	1.8970	12 15 10.3	12.019
21	23 35 9.01	1.8818	2 0 40.2	13.865	21	1 5 16.22	1.8988	12 27 9.8	11.963
22	23 37 1.88	1.8805	2 14 31.4	13.842	22	1 7 10.20	1.9006	12 39 5.9	11.906
23	23 38 54.67	1.8793	N. 2 28 21.3	13.819	23	1 9 4.29	1.9025	N. 12 50 58.5	11.848
	THURSDAY 2.					**SATURDAY 4.**			
0	23 40 47.39	1.8782	N. 2 42 9.7	13.795	0	1 10 58.50	1.9045	N. 13 2 47.7	11.790
1	23 42 40.05	1.8771	2 55 56.7	13.771	1	1 12 52.83	1.9065	13 14 33.3	11.730
2	23 44 32.64	1.8760	3 9 42.2	13.745	2	1 14 47.28	1.9086	13 26 15.3	11.670
3	23 46 25.17	1.8751	3 23 26.1	13.719	3	1 16 41.86	1.9107	13 37 53.7	11.610
4	23 48 17.65	1.8743	3 37 8.4	13.692	4	1 18 36.57	1.9129	13 49 28.5	11.549
5	23 50 10.09	1.8736	3 50 49.1	13.664	5	1 20 31.41	1.9152	14 0 59.6	11.487
6	23 52 2.48	1.8728	4 4 28.1	13.636	6	1 22 26.39	1.9174	14 12 26.9	11.423
7	23 53 54.83	1.8722	4 18 5.4	13.607	7	1 24 21.50	1.9197	14 23 50.4	11.360
8	23 55 47.15	1.8717	4 31 40.9	13.577	8	1 26 16.75	1.9220	14 35 10.1	11.297
9	23 57 39.43	1.8712	4 45 14.6	13.546	9	1 28 12.14	1.9244	14 46 26.0	11.232
10	23 59 31.69	1.8708	4 58 46.4	13.514	10	1 30 7.68	1.9268	14 57 37.9	11.166
11	0 1 23.93	1.8705	5 12 16.3	13.482	11	1 32 3.36	1.9293	15 8 45.9	11.099
12	0 3 16.15	1.8703	5 25 44.2	13.448	12	1 33 59.19	1.9318	15 19 49.8	11.032
13	0 5 8.36	1.8701	5 39 10.1	13.415	13	1 35 55.17	1.9343	15 30 49.7	10.964
14	0 7 0.56	1.8699	5 52 34.0	13.381	14	1 37 51.31	1.9370	15 41 45.5	10.896
15	0 8 52.75	1.8699	6 5 55.8	13.346	15	1 39 47.61	1.9397	15 52 37.2	10.827
16	0 10 44.95	1.8700	6 19 15.5	13.311	16	1 41 44.07	1.9423	16 3 24.7	10.757
17	0 12 37.15	1.8700	6 32 33.1	13.274	17	1 43 40.69	1.9450	16 14 8.0	10.687
18	0 14 29.35	1.8702	6 45 48.4	13.236	18	1 45 37.47	1.9478	16 24 47.1	10.615
19	0 16 21.57	1.8704	6 59 1.4	13.198	19	1 47 34.42	1.9506	16 35 21.8	10.542
20	0 18 13.80	1.8708	7 12 12.2	13.160	20	1 49 31.54	1.9533	16 45 52.1	10.469
21	0 20 6.06	1.8712	7 25 20.6	13.121	21	1 51 28.82	1.9562	16 56 18.1	10.396
22	0 21 58.34	1.8715	7 38 26.7	13.081	22	1 53 26.28	1.9591	17 6 39.6	10.321
23	0 23 50.64	1.8720	7 51 30.3	13.039	23	1 55 23.91	1.9619	17 16 56.6	10.246
24	0 25 42.98	1.8727	N. 8 4 31.4	12.998	24	1 57 21.71	1.9649	N. 17 27 9.1	10.170

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SUNDAY 5.			
	h m s	s	° ′ ″	″
0	1 57 21.71	[illegible]	N.17 27 9.1	[illegible]
1	1 59 19.70	[illegible]	17 37 17.0	[illegible]
2	2 1 17.86	[illegible]	17 47 20.3	[illegible]
3	2 3 16.20	[illegible]	17 57 19.0	[illegible]
4	2 5 14.73	[illegible]	18 7 12.9	[illegible]
5	2 7 13.44	[illegible]	18 17 2.1	[illegible]
6	2 9 12.34	[illegible]	18 26 46.5	[illegible]
7	2 11 11.42	[illegible]	18 36 26.1	[illegible]
8	2 13 10.69	[illegible]	18 46 0.8	[illegible]
9	2 15 10.16	[illegible]	18 55 30.5	[illegible]
10	2 17 9.81	[illegible]	19 4 55.3	[illegible]
11	2 19 9.65	[illegible]	19 14 15.1	[illegible]
12	2 21 9.68	[illegible]	19 23 29.8	[illegible]
13	2 23 9.91	[illegible]	19 32 39.4	[illegible]
14	2 25 10.33	[illegible]	19 41 43.9	[illegible]
15	2 27 10.95	[illegible]	19 50 43.2	[illegible]
16	2 29 11.76	[illegible]	19 59 37.3	[illegible]
17	2 31 12.77	[illegible]	20 8 26.1	[illegible]
18	2 33 13.98	[illegible]	20 17 9.6	[illegible]
19	2 35 15.38	[illegible]	20 25 47.8	[illegible]
20	2 37 16.99	[illegible]	20 34 20.5	[illegible]
21	2 39 18.79	[illegible]	20 42 47.7	[illegible]
22	2 41 20.79	[illegible]	20 51 9.5	[illegible]
23	2 43 22.99	[illegible]	N 20 59 25.8	[illegible]
	MONDAY 6.			
0	2 45 25.35	[illegible]	N.21 7 36.4	[illegible]
1	2 47 27.[illegible]	[illegible]	21 15 41.5	[illegible]
2	2 49 [illegible]	[illegible]	21 23 40.9	[illegible]
3	2 51 33.7[illegible]	[illegible]	21 31 34.6	[illegible]
4	2 53 [illegible]	[illegible]	21 39 22.5	[illegible]
5	2 55 40.[illegible]	[illegible]	21 47 4.7	[illegible]
6	2 57 43.[illegible]	[illegible]	21 54 41.0	[illegible]
7	2 59 47.75	[illegible]	22 2 11.5	[illegible]
8	3 1 51.74	[illegible]	22 9 36.0	[illegible]
9	3 3 55.[illegible]	[illegible]	22 16 54.6	[illegible]
10	3 6 0.[illegible]	[illegible]	22 24 7.2	[illegible]
11	3 8 4.[illegible]	[illegible]	22 31 13.7	[illegible]
12	3 10 9.[illegible]	[illegible]	22 38 14.2	[illegible]
13	3 12 14.[illegible]	[illegible]	22 45 9.6	[illegible]
14	3 14 19.[illegible]	[illegible]	22 51 [illegible]	[illegible]
15	3 16 25.16	[illegible]	22 58 15.[illegible]	[illegible]
16	3 18 30.71	[illegible]	23 5 14.6	[illegible]
17	3 20 36.44	[illegible]	23 11 44.1	[illegible]
18	3 22 42.[illegible]	[illegible]	23 18 7.3	[illegible]
19	3 24 48.[illegible]	[illegible]	23 24 24.1	[illegible]
20	3 26 54.[illegible]	[illegible]	23 30 [illegible]	[illegible]
21	3 29 1.[illegible]	[illegible]	23 3[illegible] 5.6	[illegible]
22	3 31 7.[illegible]	[illegible]	23 42 [illegible]	[illegible]
23	3 33 14.[illegible]	[illegible]	23 4[illegible] [illegible]	[illegible]
24	3 35 21.[illegible]	[illegible]	N 23 54 11.7	[illegible]
	TUESDAY 7.			
	h m s	s	° ′ ″	″
0	3 35 21.80	[illegible]	N.23 54 11.7	[illegible]
1	3 37 29.00	[illegible]	23 59 49.7	[illegible]
2	3 39 36.38	[illegible]	24 5 21.0	[illegible]
3	3 41 43.93	[illegible]	24 10 45.7	[illegible]
4	3 43 51.66	[illegible]	24 16 3.7	[illegible]
5	3 45 59.55	[illegible]	24 21 15.0	[illegible]
6	3 48 7.61	[illegible]	24 26 19.5	[illegible]
7	3 50 15.83	[illegible]	24 31 17.3	[illegible]
8	3 52 24.22	[illegible]	24 36 8.3	[illegible]
9	3 54 32.77	[illegible]	24 40 52.4	[illegible]
10	3 56 41.47	[illegible]	24 45 29.6	[illegible]
11	3 58 50.33	[illegible]	24 50 0.0	[illegible]
12	4 0 59.33	[illegible]	24 54 23.4	[illegible]
13	4 3 8.49	[illegible]	24 58 39.9	[illegible]
14	4 5 17.79	[illegible]	25 2 49.3	[illegible]
15	4 7 27.23	[illegible]	25 6 51.7	[illegible]
16	4 9 36.52	[illegible]	25 10 47.1	[illegible]
17	4 11 46.54	[illegible]	25 14 35.4	[illegible]
18	4 13 56.40	[illegible]	25 18 16.6	[illegible]
19	4 16 6.39	[illegible]	25 21 50.6	[illegible]
20	4 18 16.51	[illegible]	25 25 17.5	[illegible]
21	4 20 26.75	[illegible]	25 28 37.2	[illegible]
22	4 22 37.11	[illegible]	25 31 49.7	[illegible]
23	4 24 47.59	[illegible]	N 25 34 55.0	[illegible]
	WEDNESDAY 8.			
0	4 26 58.18	[illegible]	N.25 37 53.0	[illegible]
1	4 29 8.88	[illegible]	25 40 43.8	[illegible]
2	4 31 19.69	[illegible]	25 43 27.2	[illegible]
3	4 33 30.61	[illegible]	25 46 3.3	[illegible]
4	4 35 41.62	[illegible]	25 48 32.1	[illegible]
5	4 37 52.73	[illegible]	25 50 53.5	[illegible]
6	4 40 3.93	[illegible]	25 53 7.6	[illegible]
7	4 42 15.22	[illegible]	25 55 14.3	[illegible]
8	4 44 26.59	[illegible]	25 57 13.6	[illegible]
9	4 46 38.04	[illegible]	25 59 5.4	[illegible]
10	4 48 49.57	[illegible]	26 0 49.8	[illegible]
11	4 51 1.18	[illegible]	26 2 2[illegible]	[illegible]
12	4 53 12.55	[illegible]	26 3 56.2	[illegible]
13	4 55 24.5[illegible]	[illegible]	26 5 1[illegible]	[illegible]
14	4 57 36.38	[illegible]	26 6 32.7	[illegible]
15	4 59 48.23	[illegible]	26 7 3[illegible].7	[illegible]
16	5 2 0.14	[illegible]	26 8 3[illegible]	[illegible]
17	5 4 12.09	[illegible]	26 9 31.2	[illegible]
18	5 6 24.09	[illegible]	26 10 15.6	[illegible]
19	5 8 36.12	[illegible]	26 10 52.5	[illegible]
20	5 10 4[illegible]	[illegible]	26 11 21.5	[illegible]
21	5 13 0.30	[illegible]	26 11 43.6	[illegible]
22	5 15 12.43	[illegible]	26 11 57.5	[illegible]
23	5 17 24.5[illegible]	[illegible]	26 12 4.5	+ [illegible]
24	5 19 36.[illegible]4	[illegible]	N 26 12 5.6	− [illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

THURSDAY 9.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	5 19 36.74	2.2028	N.26 12 3.6	0.078
1	5 21 48.92	2.2031	26 11 55.1	0.204
2	5 24 1.11	2.2032	26 11 39.1	0.330
3	5 26 13.31	2.2033	26 11 15.5	0.457
4	5 28 25.51	2.2033	26 10 44.3	0.583
5	5 30 37.71	2.2032	26 10 5.5	0.709
6	5 32 49.90	2.2031	26 9 19.2	0.835
7	5 35 2.08	2.2028	26 8 25.3	0.962
8	5 37 14.24	2.2025	26 7 23.8	1.088
9	5 39 26.38	2.2022	26 6 14.8	1.213
10	5 41 38.50	2.2018	26 4 58.2	1.339
11	5 43 50.59	2.2012	26 3 34.1	1.465
12	5 46 2.64	2.2006	26 2 2.4	1.591
13	5 48 14.66	2.2000	26 0 23.2	1.716
14	5 50 26.64	2.1993	25 58 36.5	1.842
15	5 52 38.57	2.1985	25 56 42.2	1.967
16	5 54 50.46	2.1977	25 54 40.5	2.092
17	5 57 2.29	2.1968	25 52 31.2	2.217
18	5 59 14.07	2.1958	25 50 14.5	2.341
19	6 1 25.78	2.1947	25 47 50.3	2.466
20	6 3 37.43	2.1937	25 45 18.6	2.590
21	6 5 49.02	2.1925	25 42 39.5	2.714
22	6 8 0.53	2.1912	25 39 52.9	2.838
23	6 10 11.96	2.1899	N.25 36 59.0	2.961

FRIDAY 10.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	6 12 23.32	2.1886	N.25 33 57.6	3.085
1	6 14 34.59	2.1872	25 30 48.8	3.207
2	6 16 45.78	2.1857	25 27 32.7	3.329
3	6 18 56.87	2.1841	25 24 9.3	3.452
4	6 21 7.87	2.1825	25 20 38.5	3.574
5	6 23 18.77	2.1808	25 17 0.4	3.696
6	6 25 29.56	2.1791	25 13 15.0	3.817
7	6 27 40.26	2.1773	25 9 22.4	3.937
8	6 29 50.84	2.1755	25 5 22.6	4.058
9	6 32 1.32	2.1737	25 1 15.5	4.178
10	6 34 11.68	2.1717	24 57 1.2	4.298
11	6 36 21.92	2.1697	24 52 39.8	4.417
12	6 38 32.04	2.1677	24 48 11.2	4.536
13	6 40 42.04	2.1656	24 43 35.5	4.654
14	6 42 51.91	2.1635	24 38 52.7	4.772
15	6 45 1.66	2.1613	24 34 2.8	4.890
16	6 47 11.27	2.1591	24 29 5.9	5.007
17	6 49 20.75	2.1568	24 24 2.0	5.123
18	6 51 30.09	2.1546	24 18 51.1	5.239
19	6 53 39.30	2.1522	24 13 33.3	5.355
20	6 55 48.36	2.1498	24 8 8.5	5.470
21	6 57 57.28	2.1474	24 2 36.9	5.585
22	7 0 6.05	2.1449	23 56 58.3	5.699
23	7 2 14.67	2.1424	23 51 13.0	5.812
24	7 4 23.14	2.1399	N.23 45 20.9	5.925

SATURDAY 11.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	7 4 23.14	2.1399	N.23 45 20.9	5.925
1	7 6 31.46	2.1373	23 39 22.0	6.038
2	7 8 39.62	2.1348	23 33 16.4	6.150
3	7 10 47.63	2.1322	23 27 4.0	6.262
4	7 12 55.48	2.1295	23 20 45.0	6.372
5	7 15 3.17	2.1269	23 14 19.4	6.482
6	7 17 10.70	2.1241	23 7 47.2	6.592
7	7 19 18.06	2.1213	23 1 8.4	6.701
8	7 21 25.26	2.1186	22 54 23.1	6.809
9	7 23 32.29	2.1158	22 47 31.3	6.917
10	7 25 39.16	2.1131	22 40 33.1	7.024
11	7 27 45.86	2.1103	22 33 28.4	7.131
12	7 29 52.39	2.1074	22 26 17.4	7.237
13	7 31 58.75	2.1045	22 19 0.0	7.342
14	7 34 4.93	2.1017	22 11 36.4	7.446
15	7 36 10.95	2.0988	22 4 6.5	7.551
16	7 38 16.79	2.0958	21 56 30.3	7.654
17	7 40 22.45	2.0929	21 48 48.0	7.757
18	7 42 27.94	2.0900	21 40 59.5	7.859
19	7 44 33.25	2.0871	21 33 4.9	7.960
20	7 46 38.39	2.0842	21 25 4.3	8.061
21	7 48 43.35	2.0813	21 16 57.6	8.161
22	7 50 48.14	2.0783	21 8 45.0	8.260
23	7 52 52.75	2.0753	N.21 0 26.4	8.359

SUNDAY 12.

Hour.	Right Ascension. h m s	Diff. for 1 Minute. s	Declination. ° ′ ″	Diff. for 1 Minute. ″
0	7 54 57.17	2.0723	N.20 52 1.9	8.457
1	7 57 1.42	2.0694	20 43 31.6	8.553
2	7 59 5.50	2.0665	20 34 55.5	8.650
3	8 1 9.40	2.0635	20 26 13.6	8.747
4	8 3 13.12	2.0606	20 17 25.9	8.842
5	8 5 16.67	2.0577	20 8 32.6	8.936
6	8 7 20.04	2.0548	19 59 33.6	9.030
7	8 9 23.24	2.0518	19 50 29.0	9.123
8	8 11 26.26	2.0489	19 41 18.9	9.215
9	8 13 29.11	2.0460	19 32 3.2	9.307
10	8 15 31.78	2.0431	19 22 42.0	9.398
11	8 17 34.28	2.0403	19 13 15.4	9.488
12	8 19 36.61	2.0374	19 3 43.4	9.578
13	8 21 38.77	2.0345	18 54 6.1	9.666
14	8 23 40.75	2.0316	18 44 23.5	9.754
15	8 25 42.56	2.0288	18 34 35.6	9.842
16	8 27 44.21	2.0261	18 24 42.5	9.928
17	8 29 45.69	2.0233	18 14 44.2	10.014
18	8 31 47.01	2.0206	18 4 40.8	10.099
19	8 33 48.16	2.0178	17 54 32.3	10.183
20	8 35 49.15	2.0151	17 44 18.8	10.267
21	8 37 49.97	2.0124	17 34 0.3	10.350
22	8 39 50.64	2.0098	17 23 36.8	10.432
23	8 41 51.14	2.0071	17 13 8.5	10.513
24	8 43 51.49	2.0046	N.17 2 35.2	10.594

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

MONDAY 13.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	8 43 51.49	[illegible]	N 17 2 35.2	[illegible]
1	8 45 51.69	[illegible]	16 51 57.2	[illegible]
2	8 47 51.73	[illegible]	16 41 14.4	[illegible]
3	8 49 51.62	[illegible]	16 30 26.9	[illegible]
4	8 51 51.37	[illegible]	16 19 34.6	[illegible]
5	8 53 50.96	[illegible]	16 8 37.7	[illegible]
6	8 55 50.41	[illegible]	15 57 36.2	[illegible]
7	8 57 49.72	[illegible]	15 46 30.2	[illegible]
8	8 59 48.89	[illegible]	15 35 19.7	[illegible]
9	9 1 47.92	[illegible]	15 24 4.8	[illegible]
10	9 3 46.81	[illegible]	15 12 45.4	[illegible]
11	9 5 45.57	[illegible]	15 1 21.6	[illegible]
12	9 7 44.19	[illegible]	14 49 53.5	[illegible]
13	9 9 42.69	[illegible]	14 38 21.1	[illegible]
14	9 11 41.06	[illegible]	14 26 44.5	[illegible]
15	9 13 39.31	[illegible]	14 15 3.7	[illegible]
16	9 15 37.43	[illegible]	14 3 [illegible]	[illegible]
17	9 17 35.44	[illegible]	13 51 [illegible]	[illegible]
18	9 19 33.34	[illegible]	13 39 [illegible]	[illegible]
19	9 21 31.12	[illegible]	13 27 [illegible]	[illegible]
20	9 23 28.79	[illegible]	13 15 [illegible]	[illegible]
21	9 25 26.35	[illegible]	13 3 33.6	[illegible]
22	9 27 23.81	[illegible]	12 51 24.7	[illegible]
23	9 29 21.16	[illegible]	N 12 39 12.2	[illegible]

TUESDAY 14.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	9 31 18.42	[illegible]	N 12 26 55.7	[illegible]
1	9 33 15.[illegible]	[illegible]	12 14 35.5	[illegible]
2	9 35 12.[illegible]	[illegible]	12 2 11.7	[illegible]
3	9 37 9.65	[illegible]	11 49 44.2	[illegible]
4	9 39 6.55	[illegible]	11 37 [illegible]	[illegible]
5	9 41 3.37	[illegible]	11 24 [illegible]	[illegible]
6	9 43 0.11	[illegible]	11 12 0.2	[illegible]
7	9 44 56.77	[illegible]	10 59 [illegible]	[illegible]
8	9 46 53.37	[illegible]	10 46 [illegible]	[illegible]
9	9 48 [illegible]	[illegible]	10 33 45.2	[illegible]
10	9 50 46.35	[illegible]	10 20 [illegible]	[illegible]
11	9 52 42.75	[illegible]	10 7 [illegible]	[illegible]
12	9 54 [illegible]	[illegible]	9 55 [illegible]	[illegible]
13	9 56 35.[illegible]	[illegible]	9 41 [illegible]	[illegible]
14	9 58 [illegible]	[illegible]	9 [illegible] 44.4	[illegible]
15	10 0 [illegible]	[illegible]	9 15 [illegible]	[illegible]
16	10 2 [illegible]	[illegible]	9 2 [illegible]	[illegible]
17	10 4 [illegible]	[illegible]	8 4[illegible] [illegible].5	[illegible]
18	10 6 16.14	[illegible]	[illegible]	[illegible]
19	10 8 12.[illegible]	[illegible]	[illegible]	[illegible]
20	10 10 [illegible]	[illegible]	8 9 [illegible]	[illegible]
21	10 12 4.[illegible]	[illegible]	7 55 [illegible]	[illegible]
22	10 14 0.[illegible]	[illegible]	7 42 [illegible]	[illegible]
23	10 15 [illegible]	[illegible]	7 [illegible]	[illegible]
24	10 1[illegible] [illegible]	[illegible]	N [illegible]	[illegible]

WEDNESDAY 15.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	10 17 52.08	[illegible]	N. 7 15 26.9	[illegible]
1	10 19 48.03	[illegible]	7 1 51.0	[illegible]
2	10 21 43.97	[illegible]	6 48 12.5	[illegible]
3	10 23 39.91	[illegible]	6 34 31.5	[illegible]
4	10 25 35.86	[illegible]	6 20 48.0	[illegible]
5	10 27 31.82	[illegible]	6 7 2.1	[illegible]
6	10 29 27.79	[illegible]	5 53 13.8	[illegible]
7	10 31 23.75	[illegible]	5 39 23.1	[illegible]
8	10 33 19.80	[illegible]	5 25 30.2	[illegible]
9	10 35 15.84	[illegible]	5 11 35.1	[illegible]
10	10 37 11.92	[illegible]	4 57 37.8	[illegible]
11	10 39 8.03	[illegible]	4 43 38.4	[illegible]
12	10 41 4.18	[illegible]	4 29 36.8	[illegible]
13	10 43 0.38	[illegible]	4 15 33.3	[illegible]
14	10 44 56.63	[illegible]	4 1 27.8	[illegible]
15	10 46 52.94	[illegible]	3 47 20.3	[illegible]
16	10 48 49.30	[illegible]	3 33 11.0	[illegible]
17	10 50 45.73	[illegible]	3 18 59.8	[illegible]
18	10 52 42.23	[illegible]	3 4 46.9	[illegible]
19	10 54 38.80	[illegible]	2 50 32.3	[illegible]
20	10 56 35.45	[illegible]	2 36 16.0	[illegible]
21	10 58 32.18	[illegible]	2 21 58.1	[illegible]
22	11 0 29.00	[illegible]	2 7 38.6	[illegible]
23	11 2 25.92	[illegible]	N. 1 53 17.7	[illegible]

THURSDAY 16.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	11 4 22.93	[illegible]	N 1 38 55.3	[illegible]
1	11 6 20.05	[illegible]	1 24 31.5	[illegible]
2	11 8 17.27	[illegible]	1 10 6.4	[illegible]
3	11 10 14.60	[illegible]	0 55 39.9	[illegible]
4	11 12 12.05	[illegible]	0 41 12.3	[illegible]
5	11 14 9.62	[illegible]	0 26 43.5	[illegible]
6	11 16 7.32	[illegible]	N. 0 12 13.5	[illegible]
7	11 18 5.15	[illegible]	S. 0 2 17.5	[illegible]
8	11 20 3.12	[illegible]	0 16 49.5	[illegible]
9	11 22 1.23	[illegible]	0 31 22.4	[illegible]
10	11 23 59.50	[illegible]	0 45 56.3	[illegible]
11	11 25 57.91	[illegible]	1 0 30.9	[illegible]
12	11 27 56.47	[illegible]	1 15 6.3	[illegible]
13	11 29 55.20	[illegible]	1 29 42.4	[illegible]
14	11 31 54.10	[illegible]	1 44 [illegible]	[illegible]
15	11 33 53.17	[illegible]	1 58 56.5	[illegible]
16	11 35 52.42	[illegible]	2 13 34.4	[illegible]
17	11 37 51.85	[illegible]	2 28 12.7	[illegible]
18	11 39 51.47	[illegible]	2 42 51.4	[illegible]
19	11 41 51.27	[illegible]	2 57 30.5	[illegible]
20	11 43 51.[illegible]	[illegible]	3 12 9.8	[illegible]
21	11 45 51.[illegible]	[illegible]	3 26 49.3	[illegible]
22	11 47 51.[illegible]	[illegible]	3 41 [illegible]	[illegible]
23	11 49 52.[illegible]	[illegible]	3 56 [illegible]	[illegible]
24	11 51 [illegible]	[illegible]	S 4 1[illegible] [illegible]	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	FRIDAY 17.					SUNDAY 19.			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	11 51 53.46	2.0163	S. 4 10 48.4	14.661	0	13 34 37.32	2.2962	S. 15 29 9.4	13.032
1	11 53 54.55	2.0201	4 25 28.0	14.659	1	13 36 55.32	2.3038	15 42 9.1	12.958
2	11 55 55.87	2.0240	4 40 7.5	14.657	2	13 39 13.78	2.3116	15 55 4.4	12.883
3	11 57 57.43	2.0280	4 54 46.8	14.653	3	13 41 32.71	2.3194	16 7 55.1	12.806
4	11 59 59.23	2.0320	5 9 25.8	14.648	4	13 43 52.11	2.3273	16 20 41.1	12.726
5	12 2 1.27	2.0362	5 24 4.5	14.641	5	13 46 11.99	2.3353	16 33 22.2	12.644
6	12 4 3.57	2.0405	5 38 42.7	14.633	6	13 48 32.35	2.3433	16 45 58.4	12.562
7	12 6 6.13	2.0448	5 53 20.4	14.624	7	13 50 53.18	2.3513	16 58 29.6	12.477
8	12 8 8.95	2.0493	6 7 57.6	14.615	8	13 53 14.50	2.3593	17 10 55.6	12.389
9	12 10 12.04	2.0538	6 22 34.2	14.603	9	13 55 36.30	2.3674	17 23 16.3	12.300
10	12 12 15.40	2.0583	6 37 10.0	14.590	10	13 57 58.59	2.3756	17 35 31.6	12.208
11	12 14 19.04	2.0630	6 51 45.0	14.577	11	14 0 21.37	2.3838	17 47 41.3	12.115
12	12 16 22.96	2.0678	7 6 19.2	14.562	12	14 2 44.64	2.3920	17 59 45.4	12.021
13	12 18 27.17	2.0727	7 20 52.4	14.545	13	14 5 8.41	2.4003	18 11 43.8	11.924
14	12 20 31.68	2.0777	7 35 24.6	14.527	14	14 7 32.67	2.4085	18 23 36.3	11.825
15	12 22 36.49	2.0827	7 49 55.7	14.508	15	14 9 57.43	2.4168	18 35 22.8	11.723
16	12 24 41.61	2.0878	8 4 25.6	14.488	16	14 12 22.69	2.4252	18 47 3.1	11.620
17	12 26 47.03	2.0931	8 18 54.3	14.467	17	14 14 48.45	2.4335	18 58 37.2	11.515
18	12 28 52.78	2.0984	8 33 21.6	14.443	18	14 17 14.71	2.4418	19 10 4.9	11.408
19	12 30 58.84	2.1038	8 47 47.4	14.418	19	14 19 41.47	2.4502	19 21 26.1	11.298
20	12 33 5.23	2.1093	9 2 11.8	14.393	20	14 22 8.74	2.4587	19 32 40.6	11.186
21	12 35 11.96	2.1149	9 16 34.6	14.366	21	14 24 36.51	2.4670	19 43 48.4	11.073
22	12 37 19.02	2.1205	9 30 55.7	14.337	22	14 27 4.78	2.4754	19 54 49.4	10.958
23	12 39 26.42	2.1263	S. 9 45 15.0	14.306	23	14 29 33.56	2.4838	S. 20 5 43.3	10.839
	SATURDAY 18.					MONDAY 20.			
0	12 41 34.18	2.1322	S. 9 59 32.4	14.274	0	14 32 2.84	2.4923	S. 20 16 30.1	10.720
1	12 43 42.29	2.1381	10 13 47.9	14.242	1	14 34 32.63	2.5007	20 27 9.7	10.598
2	12 45 50.75	2.1440	10 28 1.4	14.207	2	14 37 2.92	2.5090	20 37 41.9	10.474
3	12 47 59.57	2.1502	10 42 12.7	14.170	3	14 39 33.71	2.5174	20 48 6.6	10.348
4	12 50 8.77	2.1564	10 56 21.8	14.133	4	14 42 5.01	2.5257	20 58 23.7	10.220
5	12 52 18.34	2.1626	11 10 28.6	14.094	5	14 44 36.80	2.5340	21 8 33.0	10.089
6	12 54 28.28	2.1689	11 24 33.1	14.053	6	14 47 9.09	2.5423	21 18 34.4	9.957
7	12 56 38.61	2.1754	11 38 35.0	14.010	7	14 49 41.88	2.5507	21 28 27.8	9.822
8	12 58 49.33	2.1819	11 52 34.3	13.966	8	14 52 15.17	2.5589	21 38 13.0	9.685
9	13 1 0.44	2.1884	12 6 30.9	13.921	9	14 54 48.95	2.5671	21 47 50.0	9.547
10	13 3 11.94	2.1951	12 20 24.8	13.873	10	14 57 23.22	2.5752	21 57 18.7	9.407
11	13 5 23.85	2.2019	12 34 15.7	13.824	11	14 59 57.97	2.5833	22 6 38.8	9.265
12	13 7 36.17	2.2087	12 48 3.7	13.774	12	15 2 33.21	2.5914	22 15 50.2	9.118
13	13 9 48.90	2.2156	13 1 48.6	13.722	13	15 5 8.94	2.5994	22 24 53.0	8.972
14	13 12 2.04	2.2226	13 15 30.3	13.668	14	15 7 45.14	2.6073	22 33 46.8	8.823
15	13 14 15.61	2.2297	13 29 8.8	13.613	15	15 10 21.81	2.6152	22 42 31.7	8.672
16	13 16 29.60	2.2368	13 42 43.8	13.555	16	15 12 58.96	2.6230	22 51 7.5	8.519
17	13 18 44.02	2.2439	13 56 15.4	13.496	17	15 14 36.57	2.6307	22 59 34.0	8.364
18	13 20 58.87	2.2512	14 9 43.3	13.434	18	15 18 14.64	2.6383	23 7 51.2	8.207
19	13 23 14.16	2.2585	14 23 7.5	13.372	19	15 20 53.17	2.6459	23 15 58.9	8.048
20	13 25 29.89	2.2659	14 36 28.0	13.308	20	15 23 32.15	2.6533	23 23 57.0	7.887
21	13 27 46.07	2.2734	14 49 44.5	13.242	21	15 26 11.57	2.6607	23 31 45.4	7.725
22	13 30 2.70	2.2809	15 2 57.0	13.173	22	15 28 51.43	2.6680	23 39 24.0	7.560
23	13 32 19.78	2.2885	15 16 5.3	13.103	23	15 31 31.73	2.6752	23 46 52.6	7.393
24	13 34 37.32	2.2962	S. 15 29 9.4	13.032	24	15 34 12.45	2.6823	S. 23 54 11.2	7.226

GREENWICH MEAN TIME

THE MOON'S RIGHT ASCENSION AND DECLINATION.

TUESDAY 21.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	15 34 12.45	[illegible]	S.23 54 11.2	[illegible]
1	15 36 53.60	[illegible]	24 1 19.7	[illegible]
2	15 39 35.16	[illegible]	24 8 17.9	[illegible]
3	15 42 17.12	[illegible]	24 15 5.7	[illegible]
4	15 44 59.49	[illegible]	24 21 43.1	[illegible]
5	15 47 42.24	[illegible]	24 28 9.9	[illegible]
6	15 50 25.38	[illegible]	24 34 26.0	[illegible]
7	15 53 8.90	[illegible]	24 40 31.3	[illegible]
8	15 55 52.78	[illegible]	24 46 25.8	[illegible]
9	15 58 37.02	[illegible]	24 52 9.3	[illegible]
10	16 1 21.60	[illegible]	24 57 41.8	[illegible]
11	16 4 6.53	[illegible]	25 3 3.1	[illegible]
12	16 6 51.79	[illegible]	25 8 13.2	[illegible]
13	16 9 37.37	[illegible]	25 13 11.9	[illegible]
14	16 12 23.27	[illegible]	25 17 59.3	[illegible]
15	16 15 9.46	[illegible]	25 22 35.1	[illegible]
16	16 17 55.94	[illegible]	25 26 59.4	[illegible]
17	16 20 42.70	[illegible]	25 31 12.0	[illegible]
18	16 23 29.73	[illegible]	25 35 12.9	[illegible]
19	16 26 17.01	[illegible]	25 39 2.1	[illegible]
20	16 29 4.54	[illegible]	25 42 39.4	[illegible]
21	16 31 52.30	[illegible]	25 46 4.8	[illegible]
22	16 34 40.[illegible]	[illegible]	25 49 18.2	[illegible]
23	16 37 28.4[illegible]	[illegible]	S.25 52 19.6	[illegible]

WEDNESDAY 22.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	16 40 16.87	[illegible]	S.25 55 8.9	[illegible]
1	16 43 5.45	[illegible]	25 57 46.1	[illegible]
2	16 45 54.20	[illegible]	26 0 11.1	[illegible]
3	16 48 43.11	[illegible]	26 2 23.9	[illegible]
4	16 51 32.17	[illegible]	26 4 24.4	[illegible]
5	16 54 21.36	[illegible]	26 6 12.6	[illegible]
6	16 57 10.[illegible]	[illegible]	26 7 48.5	[illegible]
7	17 0 0.[illegible]	[illegible]	26 9 12.0	[illegible]
8	17 2 49.[illegible]	[illegible]	26 10 23.1	[illegible]
9	17 5 [illegible]	[illegible]	26 11 21.9	[illegible]
10	17 8 [illegible]	[illegible]	26 12 8.2	[illegible]
11	17 11 18.57	[illegible]	26 12 42.0	[illegible]
12	17 14 8.33	[illegible]	26 13 3.4	[illegible]
13	17 16 58.12	[illegible]	26 13 12.3	[illegible]
14	17 19 47.92	[illegible]	26 13 8.7	[illegible]
15	17 22 37.73	[illegible]	26 12 52.6	[illegible]
16	17 25 27.52	[illegible]	26 12 24.0	[illegible]
17	17 28 17.[illegible]	[illegible]	26 11 43.[illegible]	[illegible]
18	17 31 7.[illegible]	[illegible]	26 10 49.5	[illegible]
19	17 33 [illegible]	[illegible]	26 9 4[illegible].6	[illegible]
20	17 36 46.[illegible]	[illegible]	26 8 35.2	[illegible]
21	17 39 35.[illegible]	[illegible]	26 6 54.4	[illegible]
22	17 42 25.[illegible]	[illegible]	26 5 11.3	[illegible]
23	17 45 14.55	[illegible]	26 3 15.3	[illegible]
24	17 48 [illegible]	[illegible]	S.26 1 [illegible]	[illegible]

THURSDAY 23.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	17 48 3.75	[illegible]	S.26 1 8.0	[illegible]
1	17 50 52.82	[illegible]	25 58 47.8	[illegible]
2	17 53 41.74	[illegible]	25 56 15.4	[illegible]
3	17 56 30.50	[illegible]	25 53 30.8	[illegible]
4	17 59 19.09	[illegible]	25 50 34.0	[illegible]
5	18 2 7.50	[illegible]	25 47 25.1	[illegible]
6	18 4 55.71	[illegible]	25 44 4.1	[illegible]
7	18 7 43.71	[illegible]	25 40 31.1	[illegible]
8	18 10 31.49	[illegible]	25 36 46.2	[illegible]
9	18 13 19.04	[illegible]	25 32 49.3	[illegible]
10	18 16 6.34	[illegible]	25 28 40.7	[illegible]
11	18 18 53.39	[illegible]	25 24 20.3	[illegible]
12	18 21 40.17	[illegible]	25 19 48.2	[illegible]
13	18 24 26.67	[illegible]	25 15 4.5	[illegible]
14	18 27 12.87	[illegible]	25 10 9.3	[illegible]
15	18 29 58.78	[illegible]	25 5 2.6	[illegible]
16	18 32 44.38	[illegible]	24 59 44.5	[illegible]
17	18 35 29.65	[illegible]	24 54 15.1	[illegible]
18	18 38 14.60	[illegible]	24 48 34.6	[illegible]
19	18 40 59.20	[illegible]	24 42 42.9	[illegible]
20	18 43 43.45	[illegible]	24 36 40.2	[illegible]
21	18 46 27.35	[illegible]	24 30 26.6	[illegible]
22	18 49 10.[illegible]	[illegible]	24 24 2.1	[illegible]
23	18 51 54.03	[illegible]	S.24 17 26.9	[illegible]

FRIDAY 24.

Hour	Right Ascension (h m s)	Diff. for 1 Minute (s)	Declination (° ′ ″)	Diff. for 1 Minute (″)
0	18 54 36.80	[illegible]	S.24 10 41.0	[illegible]
1	18 57 19.17	[illegible]	24 3 44.6	[illegible]
2	19 0 1.14	[illegible]	23 56 37.8	[illegible]
3	19 2 42.70	[illegible]	23 49 20.8	[illegible]
4	19 5 23.84	[illegible]	23 41 53.5	[illegible]
5	19 8 4.56	[illegible]	23 34 16.1	[illegible]
6	19 10 44.85	[illegible]	23 26 28.7	[illegible]
7	19 13 24.70	[illegible]	23 18 31.5	[illegible]
8	19 16 4.11	[illegible]	23 10 24.5	[illegible]
9	19 18 43.08	[illegible]	23 2 7.9	[illegible]
10	19 21 21.59	[illegible]	22 53 41.7	[illegible]
11	19 23 59.65	[illegible]	22 45 6.2	[illegible]
12	19 26 37.24	[illegible]	22 36 21.4	[illegible]
13	19 29 14.36	[illegible]	22 27 27.5	[illegible]
14	19 31 51.00	[illegible]	22 18 24.5	[illegible]
15	19 34 27.16	[illegible]	22 9 12.7	[illegible]
16	19 37 2.84	[illegible]	21 59 52.1	[illegible]
17	19 39 38.04	[illegible]	21 50 22.8	[illegible]
18	19 42 12.75	[illegible]	21 40 45.0	[illegible]
19	19 44 4[illegible]	[illegible]	21 30 58.8	[illegible]
20	19 47 20.[illegible]	[illegible]	21 21 4.3	[illegible]
21	19 49 53.20	[illegible]	21 11 1.7	[illegible]
22	19 52 26.03	[illegible]	21 0 51.2	[illegible]
23	19 54 58.[illegible]	[illegible]	20 50 32.6	[illegible]
24	19 57 [illegible]	[illegible]	S.20 40 6.3	[illegible]

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.	Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	SATURDAY 25.					**MONDAY 27.**			
	h m s	s	° ′ ″	″		h m s	s	° ′ ″	″
0	19 57 30.56	2.5243	S.20 40 6.3	10.502	0	21 49 13.42	2.1475	S.10 28 24.9	14.229
1	20 0 1.77	2.5159	20 29 32.4	10.627	1	21 51 22.08	2.1412	10 14 10.1	14.262
2	20 2 32.47	2.5074	20 18 51.0	10.751	2	21 53 30.36	2.1348	9 59 53.5	14.293
3	20 5 2.66	2.4989	20 8 2.3	10.873	3	21 55 38.26	2.1287	9 45 35.0	14.323
4	20 7 32.34	2.4904	19 57 6.3	10.993	4	21 57 45.80	2.1225	9 31 14.8	14.350
5	20 10 1.51	2.4820	19 46 3.2	11.109	5	21 59 52.96	2.1164	9 16 53.0	14.376
6	20 12 30.18	2.4735	19 34 53.2	11.224	6	22 1 59.77	2.1105	9 2 29.7	14.401
7	20 14 58.33	2.4649	19 23 36.3	11.337	7	22 4 6.22	2.1046	8 48 4.9	14.425
8	20 17 25.97	2.4564	19 12 12.7	11.448	8	22 6 12.32	2.0988	8 33 38.7	14.447
9	20 19 53.10	2.4479	19 0 42.5	11.557	9	22 8 18.08	2.0931	8 19 11.3	14.467
10	20 22 19.72	2.4394	18 49 5.9	11.663	10	22 10 23.49	2.0874	8 4 42.7	14.486
11	20 24 45.83	2.4309	18 37 22.9	11.768	11	22 12 28.57	2.0819	7 50 13.0	14.503
12	20 27 11.43	2.4224	18 25 33.7	11.870	12	22 14 33.32	2.0765	7 35 42.3	14.520
13	20 29 36.52	2.4139	18 13 38.5	11.970	13	22 16 37.75	2.0711	7 21 10.6	14.535
14	20 32 1.10	2.4055	18 1 37.3	12.068	14	22 18 41.85	2.0658	7 6 38.1	14.548
15	20 34 25.18	2.3972	17 49 30.3	12.164	15	22 20 45.64	2.0607	6 52 4.8	14.560
16	20 36 48.76	2.3888	17 37 17.6	12.257	16	22 22 49.13	2.0556	6 37 30.9	14.571
17	20 39 11.83	2.3805	17 24 59.4	12.348	17	22 24 52.31	2.0505	6 22 56.3	14.580
18	20 41 34.40	2.3721	17 12 35.8	12.438	18	22 26 55.19	2.0456	6 8 21.1	14.590
19	20 43 56.48	2.3638	17 0 6.8	12.527	19	22 28 57.78	2.0408	5 53 45.5	14.597
20	20 46 18.06	2.3555	16 47 32.6	12.612	20	22 31 0.08	2.0360	5 39 9.5	14.603
21	20 48 39.14	2.3473	16 34 53.4	12.695	21	22 33 2.10	2.0313	5 24 33.2	14.607
22	20 50 59.73	2.3391	16 22 9.2	12.777	22	22 35 3.84	2.0268	5 9 56.7	14.610
23	20 53 19.83	2.3310	S.16 9 20.2	12.856	23	22 37 5.31	2.0223	S. 4 55 20.0	14.612
	SUNDAY 26.					**TUESDAY 28.**			
0	20 55 39.45	2.3229	S.15 56 26.5	12.933	0	22 39 6.51	2.0178	S. 4 40 43.2	14.613
1	20 57 58.58	2.3149	15 43 28.2	13.008	1	22 41 7.45	2.0136	4 26 6.4	14.613
2	21 0 17.24	2.3069	15 30 25.5	13.082	2	22 43 8.14	2.0095	4 11 29.6	14.612
3	21 2 35.41	2.2989	15 17 18.4	13.154	3	22 45 8.57	2.0052	3 56 52.9	14.609
4	21 4 53.11	2.2911	15 4 7.0	13.223	4	22 47 8.76	2.0012	3 42 16.5	14.605
5	21 7 10.34	2.2833	14 50 51.6	13.290	5	22 49 8.71	1.9972	3 27 40.3	14.601
6	21 9 27.11	2.2755	14 37 32.2	13.356	6	22 51 8.42	1.9933	3 13 4.4	14.595
7	21 11 43.40	2.2678	14 24 8.9	13.420	7	22 53 7.90	1.9895	2 58 28.9	14.588
8	21 13 59.24	2.2602	14 10 41.8	13.482	8	22 55 7.16	1.9858	2 43 53.8	14.580
9	21 16 14.63	2.2527	13 57 11.0	13.542	9	22 57 6.20	1.9822	2 29 19.3	14.571
10	21 18 29.56	2.2451	13 43 36.7	13.600	10	22 59 5.02	1.9786	2 14 45.3	14.561
11	21 20 44.04	2.2376	13 29 59.0	13.656	11	23 1 3.63	1.9752	2 0 12.0	14.549
12	21 22 58.07	2.2303	13 16 18.0	13.710	12	23 3 2.04	1.9718	1 45 39.4	14.537
13	21 25 11.67	2.2230	13 2 33.8	13.763	13	23 5 0.25	1.9686	1 31 7.6	14.523
14	21 27 24.83	2.2158	12 48 46.4	13.814	14	23 6 58.27	1.9654	1 16 36.6	14.510
15	21 29 37.56	2.2086	12 34 56.1	13.863	15	23 8 56.10	1.9623	1 2 6.4	14.495
16	21 31 49.86	2.2015	12 21 2.8	13.911	16	23 10 53.75	1.9593	0 47 37.2	14.478
17	21 34 1.74	2.1945	12 7 6.8	13.956	17	23 12 51.22	1.9564	0 33 9.0	14.462
18	21 36 13.20	2.1875	11 53 8.1	14.000	18	23 14 48.52	1.9536	0 18 41.9	14.443
19	21 38 24.25	2.1807	11 39 6.8	14.042	19	23 16 45.65	1.9508	S. 0 4 15.9	14.424
20	21 40 34.88	2.1738	11 25 3.0	14.083	20	23 18 42.61	1.9481	N. 0 10 9.0	14.404
21	21 42 45.11	2.1672	11 10 56.8	14.122	21	23 20 39.42	1.9455	0 24 32.6	14.383
22	21 44 54.94	2.1606	10 56 48.3	14.160	22	23 22 36.07	1.9429	0 38 54.9	14.362
23	21 47 4.38	2.1540	10 42 37.6	14.195	23	23 24 32.57	1.9405	0 53 15.9	14.337
24	21 49 13.42	2.1475	S.10 28 24.9	14.229	24	23 26 28.93	1.9383	N. 1 7 35.4	14.313

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

WEDNESDAY 29.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	23 26 28.93	[illegible]	N. 1 7 35.4	[illegible]
1	23 28 25.16	[illegible]	1 21 53.5	[illegible]
2	23 30 21.25	[illegible]	1 36 10.2	[illegible]
3	23 32 17.22	[illegible]	1 50 25.3	[illegible]
4	23 34 13.05	[illegible]	2 4 38.8	[illegible]
5	23 36 8.77	[illegible]	2 18 50.6	[illegible]
6	23 38 4.38	[illegible]	2 33 0.7	[illegible]
7	23 39 59.85	[illegible]	2 47 9.1	[illegible]
8	23 41 55.27	[illegible]	3 1 15.6	[illegible]
9	23 43 50.57	[illegible]	3 15 20.3	[illegible]
10	23 45 45.77	[illegible]	3 29 23.1	[illegible]
11	23 47 40.95	[illegible]	3 43 23.9	[illegible]
12	23 49 35.91	[illegible]	3 57 22.9	[illegible]
13	23 51 30.86	[illegible]	4 11 19.6	[illegible]
14	23 53 25.73	[illegible]	4 25 14.3	[illegible]
15	23 55 20.53	[illegible]	4 39 6.9	[illegible]
16	23 57 15.29	[illegible]	4 52 57.3	[illegible]
17	23 59 9.93	[illegible]	5 6 45.4	[illegible]
18	0 1 4.55	[illegible]	5 20 31.3	[illegible]
19	0 2 59.11	[illegible]	5 34 14.9	[illegible]
20	0 4 53.62	[illegible]	5 47 56.1	[illegible]
21	0 6 48.09	[illegible]	6 1 34.9	[illegible]
22	0 8 42.52	[illegible]	6 15 11.2	[illegible]
23	0 10 36.92	[illegible]	N 6 28 45.0	[illegible]

THURSDAY 30.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	0 12 31.28	[illegible]	N. 6 42 16.3	[illegible]
1	0 14 25.62	[illegible]	6 55 45.0	[illegible]
2	0 16 19.93	[illegible]	7 9 11.0	[illegible]
3	0 18 14.23	[illegible]	7 22 34.4	[illegible]
4	0 20 8.51	[illegible]	7 35 55.1	[illegible]
5	0 22 2.79	[illegible]	7 49 13.0	[illegible]
6	0 23 57.[illegible]	[illegible]	8 2 28.1	[illegible]
7	0 25 51.33	[illegible]	8 15 40.4	[illegible]
8	0 27 45.[illegible]	[illegible]	8 28 49.5	[illegible]
9	0 29 [illegible]	[illegible]	8 41 56.3	[illegible]
10	0 31 34.15	[illegible]	8 54 5[illegible].3	[illegible]
11	0 33 2[illegible].4[illegible]	[illegible]	9 [illegible] [illegible].3	[illegible]
12	0 35 22.[illegible]	[illegible]	9 20 5[illegible].7	[illegible]
13	0 37 17.17	[illegible]	9 33 52.1	[illegible]
14	0 39 11.55	[illegible]	9 46 43.3	[illegible]
15	0 41 5.[illegible]	[illegible]	9 59 31.3	[illegible]
16	0 43 0.4[illegible]	[illegible]	10 12 16.2	[illegible]
17	0 44 54.[illegible]	[illegible]	10 24 5[illegible].[illegible]	[illegible]
18	0 46 4[illegible].41	[illegible]	10 [illegible] [illegible].1	[illegible]
19	0 48 4[illegible].[illegible]	[illegible]	10 5[illegible] 11.1	[illegible]
20	0 50 [illegible]	[illegible]	11 2 42.7	[illegible]
21	0 52 [illegible]	[illegible]	11 15 10.9	[illegible]
22	0 54 2[illegible].[illegible]2	[illegible]	11 27 35.7	[illegible]
23	0 56 2[illegible].[illegible]2	[illegible]	11 3[illegible] 57.0	[illegible]
24	0 58 1[illegible]	[illegible]	N. 11 52 14.7	[illegible]

FRIDAY 31.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
	h m s	s	° ′ ″	″
0	0 58 17.68	[illegible]	N. 11 52 14.7	[illegible]
1	1 0 12.61	[illegible]	12 4 28.9	[illegible]
2	1 2 7.61	[illegible]	12 16 39.5	[illegible]
3	1 4 2.69	[illegible]	12 28 46.4	[illegible]
4	1 5 57.85	[illegible]	12 40 49.6	[illegible]
5	1 7 53.09	[illegible]	12 52 49.1	[illegible]
6	1 9 48.41	[illegible]	13 4 44.9	[illegible]
7	1 11 43.82	[illegible]	13 16 36.9	[illegible]
8	1 13 39.32	[illegible]	13 28 25.0	[illegible]
9	1 15 34.92	[illegible]	13 40 9.2	[illegible]
10	1 17 30.62	[illegible]	13 51 49.5	[illegible]
11	1 19 26.42	[illegible]	14 3 25.9	[illegible]
12	1 21 22.32	[illegible]	14 14 57.2	[illegible]
13	1 23 18.33	[illegible]	14 26 26.5	[illegible]
14	1 25 14.45	[illegible]	14 37 50.9	[illegible]
15	1 27 10.69	[illegible]	14 49 10.9	[illegible]
16	1 29 7.04	[illegible]	15 0 26.9	[illegible]
17	1 31 3.51	[illegible]	15 11 38.7	[illegible]
18	1 33 0.10	[illegible]	15 22 46.3	[illegible]
19	1 34 56.82	[illegible]	15 33 49.6	[illegible]
20	1 36 53.67	[illegible]	15 44 48.6	[illegible]
21	1 38 50.64	[illegible]	15 55 43.2	[illegible]
22	1 40 47.75	[illegible]	16 6 33.5	[illegible]
23	1 42 44.[illegible]	[illegible]	N 16 17 19.4	[illegible]

SATURDAY, JANUARY 1, 1898.

Hour.	Right Ascension.	Diff. for 1 Minute.	Declination.	Diff. for 1 Minute.
0	1 44 42.37	[illegible]	N 16 28 0.7	[illegible]

PHASES OF THE MOON.

			d	h	m
○	Full Moon	Dec.	8	16	54.4
☾	Last Quarter		16	16	21.9
●	New Moon		23	7	55.2
☽	First Quarter		30	7	26.7

			d	h
☾	Apogee	Dec.	7	22.6
☾	Perigee		22	15.3

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
1	Sun	W.	94 20 19	3084	95 48 48	3100	97 16 58	3116	98 44 48	3131
	α Aquilæ	W.	48 35 28	3860	49 49 28	3822	51 4 7	3789	52 19 21	3758
	α Arietis	E.	52 14 0	2742	50 38 16	2758	49 2 53	2775	47 27 52	2790
	Aldebaran	E.	84 48 4	2775	83 13 4	2791	81 38 24	2806	80 4 4	2821
2	Sun	W.	105 59 28	3204	107 25 32	3217	108 51 21	3231	110 16 54	3243
	α Aquilæ	W.	58 42 15	3655	59 59 50	3642	61 17 39	3630	62 35 41	3620
	α Arietis	E.	39 37 49	2867	38 4 48	2883	36 32 7	2898	34 59 45	2912
	Aldebaran	E.	72 17 8	2892	70 44 39	2905	69 12 27	2919	67 40 32	2931
	Pollux	E.	114 19 33	2856	112 46 18	2868	111 13 18	2879	109 40 32	2891
3	Sun	W.	117 21 4	3301	118 45 14	3312	120 9 12	3322	121 32 58	3332
	α Aquilæ	W.	69 8 7	3587	70 26 55	3585	71 45 46	3582	73 4 40	3581
	Fomalhaut	W.	44 21 56	3785	45 37 14	3750	46 53 8	3719	48 9 35	3691
	Aldebaran	E.	60 5 0	2994	58 34 40	3007	57 4 36	3019	55 34 47	3030
	Pollux	E.	102 0 8	2941	100 28 41	2950	98 57 26	2959	97 26 22	2967
4	α Aquilæ	W.	79 39 22	3581	80 58 17	3583	82 17 10	3586	83 36 0	3587
	Fomalhaut	W.	54 38 20	3589	55 57 6	3576	57 16 7	3562	58 35 23	3550
	α Pegasi	W.	31 52 51	3573	33 11 55	3534	34 31 42	3500	35 52 6	3471
	Aldebaran	E.	48 9 19	3090	46 40 57	3103	45 12 51	3115	43 45 0	3129
	Pollux	E.	89 53 35	3006	88 23 30	3013	86 53 33	3020	85 23 45	3026
5	α Aquilæ	W.	90 9 21	3607	91 27 48	3612	92 46 9	3618	94 4 24	3623
	Fomalhaut	W.	65 14 33	3507	66 34 49	3500	67 55 13	3495	69 15 43	3489
	α Pegasi	W.	42 41 7	3370	44 3 58	3356	45 27 5	3345	46 50 25	3333
	Pollux	E.	77 56 32	3053	76 27 25	3058	74 58 24	3062	73 29 28	3067
	Regulus	E.	114 52 13	3035	113 22 44	3039	111 53 19	3043	110 23 59	3047
6	α Aquilæ	W.	100 33 54	3661	101 51 23	3670	103 8 42	3679	104 25 51	3689
	Fomalhaut	W.	75 59 26	3471	77 20 22	3470	78 41 20	3467	80 2 21	3466
	α Pegasi	W.	53 49 52	3293	55 14 12	3287	56 38 39	3281	58 3 13	3276
	Pollux	E.	66 6 5	3086	64 37 38	3088	63 9 14	3091	61 40 54	3094
	Regulus	E.	102 58 24	3062	101 29 28	3064	100 0 34	3066	98 31 43	3068
7	Fomalhaut	W.	86 47 44	3462	88 8 51	3463	89 29 57	3463	90 51 2	3463
	α Pegasi	W.	65 7 21	3256	66 32 24	3252	67 57 32	3248	69 22 44	3246
	α Arietis	W.	21 32 8	3180	22 58 41	3168	24 25 28	3158	25 52 27	3151
	Pollux	E.	54 20 3	3107	52 52 2	3110	51 24 4	3112	49 56 9	3114
	Regulus	E.	91 7 59	3075	89 39 19	3075	88 10 39	3076	86 42 0	3077
8	Fomalhaut	W.	97 36 11	3472	98 57 7	3475	100 17 59	3479	101 38 47	3481
	α Pegasi	W.	76 29 33	3232	77 55 4	3230	79 20 38	3227	80 46 15	3225
	α Arietis	W.	33 9 30	3120	34 37 15	3116	36 5 5	3112	37 33 0	3109
	Pollux	E.	42 37 15	3126	41 9 37	3129	39 42 3	3133	38 14 33	3136
	Regulus	E.	79 18 51	3077	77 50 13	3076	76 21 34	3075	74 52 54	3074
	Jupiter	E.	117 44 36	3148	116 17 25	3148	114 50 13	3146	113 22 59	3145
9	α Pegasi	W.	87 54 58	3214	89 20 50	3213	90 46 44	3211	92 12 40	3209
	α Arietis	W.	44 53 39	3091	46 21 59	3088	47 50 23	3085	49 18 51	3081
	Regulus	E.	67 29 16	3069	66 0 28	3066	64 31 37	3065	63 2 44	3063
	Jupiter	E.	106 6 14	3134	104 38 46	3132	103 11 15	3130	101 43 42	3127

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Midnight. ° ′ ″	P.L. of Diff.	XV^h ° ′ ″	P.L. of Diff.	XVIII^h ° ′ ″	P.L. of Diff.	XXI^h ° ′ ″	P.L. of Diff.
1	Sun	W.	100 12 20	[illegible]	101 39 33	[illegible]	103 6 29	[illegible]	104 33 7	[illegible]
	α Aquilæ	W.	53 35 7	[illegible]	54 51 20	[illegible]	56 7 58	[illegible]	57 24 57	[illegible]
	α Arietis	E.	45 53 11	[illegible]	44 18 50	[illegible]	42 44 50	[illegible]	41 11 10	[illegible]
	Aldebaran	E.	78 30 4	[illegible]	76 56 22	[illegible]	75 22 59	[illegible]	73 49 55	[illegible]
2	Sun	W.	111 42 12	[illegible]	113 7 15	[illegible]	114 32 5	[illegible]	115 56 41	[illegible]
	α Aquilæ	W.	63 53 54	[illegible]	65 12 16	[illegible]	66 30 47	[illegible]	67 49 24	[illegible]
	α Arietis	E.	33 27 42	[illegible]	31 55 59	[illegible]	30 24 36	[illegible]	28 53 34	[illegible]
	Aldebaran	E.	66 8 53	[illegible]	64 37 31	[illegible]	63 6 25	[illegible]	61 35 35	[illegible]
	Pollux	E.	108 8 1	[illegible]	106 35 43	[illegible]	105 3 39	[illegible]	103 31 47	[illegible]
3	Sun	W.	122 56 33	[illegible]	124 19 57	[illegible]	125 43 10	[illegible]	127 6 13	[illegible]
	α Aquilæ	W.	74 23 35	[illegible]	75 42 32	[illegible]	77 1 29	[illegible]	78 20 26	[illegible]
	Fomalhaut	W.	49 26 32	[illegible]	50 43 55	[illegible]	52 1 43	[illegible]	53 19 52	[illegible]
	Aldebaran	E.	54 5 12	[illegible]	52 35 52	[illegible]	51 6 46	[illegible]	49 37 55	[illegible]
	Pollux	E.	95 55 28	[illegible]	94 24 45	[illegible]	92 54 12	[illegible]	91 23 49	[illegible]
4	α Aquilæ	W.	84 54 48	[illegible]	86 13 32	[illegible]	87 32 13	[illegible]	88 50 49	[illegible]
	Fomalhaut	W.	59 54 52	[illegible]	61 14 33	[illegible]	62 34 24	[illegible]	63 54 24	[illegible]
	α Pegasi	W.	37 13 3	[illegible]	38 34 29	[illegible]	39 56 20	[illegible]	41 18 34	[illegible]
	Aldebaran	E.	42 17 25	[illegible]	40 50 6	[illegible]	39 23 3	[illegible]	37 56 18	[illegible]
	Pollux	E.	83 54 4	[illegible]	82 24 30	[illegible]	80 55 4	[illegible]	79 25 45	[illegible]
5	α Aquilæ	W.	95 22 33	[illegible]	96 40 35	[illegible]	97 58 29	[illegible]	99 16 16	[illegible]
	Fomalhaut	W.	70 36 12	[illegible]	71 57 0	[illegible]	73 17 45	[illegible]	74 38 34	[illegible]
	α Pegasi	W.	48 13 58	[illegible]	49 37 42	[illegible]	51 1 36	[illegible]	52 25 40	[illegible]
	Pollux	E.	72 0 38	[illegible]	70 31 53	[illegible]	69 3 12	[illegible]	67 34 36	[illegible]
	Regulus	E.	108 54 44	[illegible]	107 25 34	[illegible]	105 56 27	[illegible]	104 27 24	[illegible]
6	α Aquilæ	W.	105 42 50	[illegible]	106 59 37	[illegible]	108 16 11	[illegible]	109 32 32	[illegible]
	Fomalhaut	W.	81 23 23	[illegible]	82 44 27	[illegible]	84 5 32	[illegible]	85 26 38	[illegible]
	α Pegasi	W.	59 27 52	[illegible]	60 52 17	[illegible]	62 17 27	[illegible]	63 42 22	[illegible]
	Pollux	E.	60 12 37	[illegible]	58 44 24	[illegible]	57 16 14	[illegible]	55 48 7	[illegible]
	Regulus	E.	97 2 54	[illegible]	95 34 8	[illegible]	94 5 23	[illegible]	92 36 40	[illegible]
7	Fomalhaut	W.	92 12 7	[illegible]	93 33 11	[illegible]	94 54 13	[illegible]	96 15 13	[illegible]
	α Pegasi	W.	70 47 50	[illegible]	72 13 18	[illegible]	73 38 40	[illegible]	75 4 5	[illegible]
	α Arietis	W.	[illegible]	[illegible]	28 46 52	[illegible]	30 14 18	[illegible]	31 41 51	[illegible]
	Pollux	E.	[illegible]	[illegible]	47 0 27	[illegible]	45 32 40	[illegible]	44 4 56	[illegible]
	Regulus	E.	85 13 22	[illegible]	83 44 44	[illegible]	82 16 7	[illegible]	80 47 29	[illegible]
8	Fomalhaut	W.	[illegible]	[illegible]	104 20 12	[illegible]	105 40 48	[illegible]	107 1 18	[illegible]
	α Pegasi	W.	[illegible]	[illegible]	[illegible]	[illegible]	85 3 21	[illegible]	86 29 8	[illegible]
	α Arietis	W.	[illegible]	[illegible]	[illegible]	[illegible]	41 57 11	[illegible]	43 25 23	[illegible]
	Pollux	E.	[illegible]	[illegible]	[illegible]	[illegible]	33 52 30	[illegible]	32 25 20	[illegible]
	Regulus	E.	[illegible]	[illegible]	[illegible]	[illegible]	70 26 48	[illegible]	68 58 3	[illegible]
	Jupiter	E.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	107 33 40	[illegible]
9	α Pegasi	W.	[illegible]	[illegible]	[illegible]	[illegible]	96 30 42	[illegible]	97 56 47	[illegible]
	α Arietis	W.	[illegible]	[illegible]	52 16 0	[illegible]	53 44 41	[illegible]	55 13 27	[illegible]
	Regulus	E.	[illegible]	[illegible]	[illegible]	[illegible]	58 35 58	[illegible]	57 6 49	[illegible]
	Jupiter	E.	[illegible]	[illegible]	[illegible]	[illegible]	97 20 42	[illegible]	95 52 55	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	α Pegasi	W.	99 22 54	3200	100 49 3	3198	102 15 14	3198	103 41 26	3196
	α Arietis	W.	56 42 16	3064	58 11 10	3060	59 40 9	3056	61 9 13	3052
	Aldebaran	W.	25 33 23	3359	26 56 26	3324	28 20 10	3294	29 44 29	3267
	Regulus	E.	55 37 43	3052	54 8 34	3049	52 39 22	3046	51 10 6	3043
	Jupiter	E.	94 25 5	3113	92 57 11	3110	91 29 13	3106	90 1 11	3103
	Spica	E.	109 40 35	3049	108 11 23	3046	106 42 7	3043	105 12 47	3039
11	α Arietis	W.	68 35 47	3030	70 5 23	3026	71 35 4	3020	73 4 52	3015
	Aldebaran	W.	36 52 41	3173	38 19 23	3158	39 46 22	3144	41 13 38	3131
	Regulus	E.	43 42 50	3026	42 13 10	3023	40 43 26	3019	39 13 37	3015
	Jupiter	E.	82 39 54	3083	81 11 24	3078	79 42 48	3073	78 14 6	3069
	Spica	E.	97 44 57	3019	96 15 8	3014	94 45 13	3009	93 15 12	3005
12	α Arietis	W.	80 35 30	2986	82 6 0	2981	83 36 37	2973	85 7 23	2967
	Aldebaran	W.	48 33 42	3073	50 2 24	3063	51 31 19	3052	53 0 27	3042
	Jupiter	E.	70 49 9	3043	69 19 50	3038	67 50 24	3032	66 20 51	3026
	Spica	E.	85 43 32	2977	84 12 51	2971	82 42 2	2965	81 11 6	2958
13	α Arietis	W.	92 43 22	2931	94 15 2	2922	95 46 53	2914	97 18 54	2905
	Aldebaran	W.	60 29 16	2991	61 59 40	2981	63 30 16	2971	65 1 5	2960
	Jupiter	E.	58 51 6	2993	57 20 44	2985	55 50 13	2978	54 19 33	2972
	Spica	E.	73 34 14	2923	72 2 24	2914	70 30 23	2906	68 58 12	2897
	Saturn	E.	116 39 8	2984	115 8 35	2975	113 37 51	2965	112 6 55	2957
	Venus	E.	117 33 37	3405	116 11 26	3395	114 49 4	3386	113 26 31	3375
14	Aldebaran	W.	72 38 33	2906	74 10 44	2894	75 43 10	2883	77 15 50	2872
	Pollux	W.	30 33 34	2936	32 5 7	2919	33 37 2	2901	35 9 19	2884
	Jupiter	E.	46 43 52	2932	45 12 14	2925	43 40 27	2917	42 8 30	2909
	Spica	E.	61 14 24	2851	59 41 2	2841	58 7 27	2831	56 33 39	2820
	Saturn	E.	104 29 15	2906	102 57 4	2896	101 24 40	2884	99 52 1	2873
	Venus	E.	106 30 43	3319	105 6 54	3308	103 42 52	3295	102 18 35	3283
	Sun	E.	121 39 45	3220	120 13 59	3209	118 48 0	3196	117 21 46	3184
15	Aldebaran	W.	85 3 2	2810	86 37 17	2798	88 11 48	2784	89 46 37	2771
	Pollux	W.	42 56 3	2805	44 30 25	2788	46 5 8	2773	47 40 11	2757
	Spica	E.	48 41 4	2763	47 5 48	2751	45 30 16	2739	43 54 28	2726
	Saturn	E.	92 5 3	2813	90 30 52	2800	88 56 24	2787	87 21 39	2774
	Venus	E.	95 13 25	3216	93 47 35	3202	92 21 28	3188	90 55 4	3173
	Sun	E.	110 6 52	3119	108 39 5	3105	107 11 1	3091	105 42 40	3076
16	Aldebaran	W.	97 45 7	2702	99 21 44	2688	100 58 40	2674	102 35 55	2659
	Pollux	W.	55 40 38	2678	57 17 47	2663	58 55 17	2646	60 33 9	2629
	Spica	E.	35 51 15	2665	34 13 45	2649	32 35 57	2636	30 57 51	2624
	Saturn	E.	79 23 25	2704	77 46 50	2689	76 9 55	2675	74 32 41	2659
	Venus	E.	83 38 28	3094	82 10 11	3078	80 41 34	3060	79 12 36	3044
	Sun	E.	98 16 20	2999	96 46 6	2983	95 15 32	2967	93 44 38	2950
17	Pollux	W.	68 48 7	2547	70 28 15	2530	72 8 47	2512	73 49 43	2496
	Regulus	W.	31 46 13	2541	33 26 29	2523	35 7 10	2504	36 48 17	2487
	Saturn	E.	66 21 20	2582	64 42 0	2566	63 2 19	2550	61 22 15	2535
	Venus	E.	71 42 31	2957	70 11 24	2939	68 39 54	2921	67 8 2	2902
	Sun	E.	86 4 47	2864	84 31 42	2847	82 58 15	2829	81 24 25	2811

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month	Name and Direction of Object		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
10	α Pegasi	W.	105 7 40	[illegible]	106 33 55	[illegible]	108 0 12	[illegible]	109 26 30	[illegible]
	α Arietis	W.	62 38 21	[illegible]	64 7 34	[illegible]	65 36 53	[illegible]	67 6 17	[illegible]
	Aldebaran	W.	31 9 19	[illegible]	32 34 36	[illegible]	34 0 16	[illegible]	35 26 18	[illegible]
	Regulus	E.	49 40 47	[illegible]	48 11 24	[illegible]	46 41 57	[illegible]	45 12 26	[illegible]
	Jupiter	E.	88 33 5	[illegible]	87 4 54	[illegible]	85 36 39	[illegible]	84 8 19	[illegible]
	Spica	E.	103 43 22	[illegible]	102 13 53	[illegible]	100 44 19	[illegible]	99 14 41	[illegible]
11	α Arietis	W.	74 34 46	[illegible]	76 4 47	[illegible]	77 34 54	[illegible]	79 5 8	[illegible]
	Aldebaran	W.	42 41 10	[illegible]	44 8 57	[illegible]	45 36 58	[illegible]	47 5 13	[illegible]
	Regulus	E.	37 43 43	[illegible]	36 13 45	[illegible]	34 43 42	[illegible]	33 13 34	[illegible]
	Jupiter	E.	76 45 19	[illegible]	75 16 26	[illegible]	73 47 27	[illegible]	72 18 21	[illegible]
	Spica	E.	91 45 5	[illegible]	90 14 52	[illegible]	88 44 32	[illegible]	87 14 6	[illegible]
12	α Arietis	W.	86 38 17	[illegible]	88 9 20	[illegible]	89 40 31	[illegible]	91 11 52	[illegible]
	Aldebaran	W.	54 29 48	[illegible]	55 59 21	[illegible]	57 29 7	[illegible]	58 59 5	[illegible]
	Jupiter	E.	64 51 10	[illegible]	63 21 21	[illegible]	61 51 24	[illegible]	60 21 19	[illegible]
	Spica	E.	79 40 1	[illegible]	78 8 48	[illegible]	76 37 26	[illegible]	75 5 55	[illegible]
13	α Arietis	W.	98 51 6	[illegible]	100 23 29	[illegible]	101 56 4	[illegible]	103 28 51	[illegible]
	Aldebaran	W.	66 32 8	[illegible]	68 3 24	[illegible]	69 34 53	[illegible]	71 6 36	[illegible]
	Jupiter	E.	52 48 44	[illegible]	51 17 45	[illegible]	49 46 37	[illegible]	48 15 19	[illegible]
	Spica	E.	67 25 49	[illegible]	65 53 15	[illegible]	64 20 30	[illegible]	62 47 31	[illegible]
	Saturn	E.	110 35 48	[illegible]	109 4 29	[illegible]	107 32 57	[illegible]	106 1 13	[illegible]
	Venus	E.	112 3 46	[illegible]	110 40 49	[illegible]	109 17 40	[illegible]	107 54 18	[illegible]
14	Aldebaran	W.	78 48 45	[illegible]	80 22 56	[illegible]	81 55 22	[illegible]	83 29 4	[illegible]
	Pollux	W.	36 41 58	[illegible]	38 14 58	[illegible]	39 48 19	[illegible]	41 22 1	[illegible]
	Jupiter	E.	40 36 23	[illegible]	39 4 6	[illegible]	37 31 40	[illegible]	35 59 5	[illegible]
	Spica	E.	54 59 37	[illegible]	53 25 21	[illegible]	51 50 50	[illegible]	50 16 5	[illegible]
	Saturn	E.	98 19 8	[illegible]	96 46 0	[illegible]	95 12 37	[illegible]	93 38 58	[illegible]
	Venus	E.	100 54 4	[illegible]	99 29 18	[illegible]	98 4 16	[illegible]	96 38 59	[illegible]
	Sun	E.	115 55 18	[illegible]	114 28 35	[illegible]	113 1 37	[illegible]	111 34 23	[illegible]
15	Aldebaran	W.	91 21 43	[illegible]	92 57 7	[illegible]	94 32 49	[illegible]	96 8 49	[illegible]
	Pollux	W.	49 15 35	[illegible]	50 51 20	[illegible]	52 27 25	[illegible]	54 3 51	[illegible]
	Spica	E.	42 18 23	[illegible]	40 42 1	[illegible]	39 5 23	[illegible]	37 28 28	[illegible]
	Saturn	E.	85 46 [illegible]	[illegible]	84 11 17	[illegible]	82 35 38	[illegible]	80 59 41	[illegible]
	Venus	E.	[illegible] 28 22	[illegible]	88 1 22	[illegible]	86 34 3	[illegible]	85 6 25	[illegible]
	Sun	E.	104 14 1	[illegible]	102 45 4	[illegible]	101 15 49	[illegible]	99 46 14	[illegible]
16	Aldebaran	W.	104 13 50	[illegible]	105 51 24	[illegible]	107 29 38	[illegible]	109 8 12	[illegible]
	Pollux	W.	[illegible]	[illegible]	[illegible] 1	[illegible]	65 29 0	[illegible]	67 8 32	[illegible]
	Spica	E.	[illegible]	[illegible]	27 40 47	[illegible]	26 1 50	[illegible]	24 22 38	[illegible]
	Saturn	E.	72 55 6	[illegible]	71 17 11	[illegible]	69 38 55	[illegible]	68 0 18	[illegible]
	Venus	E.	[illegible]	[illegible]	[illegible] 13 [illegible]	[illegible]	74 43 38	[illegible]	73 13 16	[illegible]
	Sun	E.	92 13 2	[illegible]	90 41 47	[illegible]	89 9 49	[illegible]	87 37 29	[illegible]
17	Pollux	W.	[illegible]	[illegible]	77 12 45	[illegible]	78 54 53	[illegible]	80 37 24	[illegible]
	Regulus	W.	[illegible]	[illegible]	40 11 4[illegible]	[illegible]	41 54 9	[illegible]	43 36 57	[illegible]
	Saturn	E.	[illegible]	[illegible]	58 1 2	[illegible]	56 19 51	[illegible]	54 38 22	[illegible]
	Venus	E.	[illegible]	[illegible]	64 3 7	[illegible]	62 30 5	[illegible]	60 56 39	[illegible]
	Sun	E.	[illegible]	[illegible]	78 15 34	[illegible]	76 40 33	[illegible]	75 5 8	[illegible]

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Name and Direction of Object.		Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Pollux	W.	82 20 20	2410	84 3 40	2394	85 47 24	2376	87 31 33	2359
	Regulus	W.	45 20 10	2398	47 3 48	2380	48 47 52	2363	50 32 20	2345
	SATURN	E.	52 56 29	2456	51 14 14	2441	49 31 38	2426	47 48 40	2411
	VENUS	E.	59 22 50	2811	57 48 37	2793	56 14 0	2775	54 38 59	2757
	SUN	E.	73 29 19	2720	71 53 6	2701	70 16 28	2684	68 39 27	2666
19	Regulus	W.	59 20 58	2260	61 7 56	2245	62 55 17	2229	64 43 2	2212
	VENUS	E.	46 38 3	2669	45 0 42	2653	43 22 59	2637	41 44 54	2621
	SUN	E.	60 28 16	2577	58 48 50	2560	57 9 0	2543	55 28 47	2527
20	Regulus	W.	73 47 34	2139	75 37 34	2125	77 27 55	2113	79 18 35	2099
	JUPITER	W.	34 14 27	2240	36 1 55	2220	37 49 53	2201	39 38 19	2184
	SUN	E.	47 2 6	2450	45 19 42	2436	43 36 58	2422	41 53 55	2409
21	Regulus	W.	88 36 32	2045	90 28 56	2035	92 21 35	2027	94 14 27	2019
	JUPITER	W.	48 46 33	2111	50 37 15	2099	52 28 15	2089	54 19 31	2079
	Spica	W.	34 35 39	2057	36 27 44	2047	38 20 5	2037	40 12 41	2028
	SUN	E.	33 14 17	2354	31 29 36	2345	29 44 42	2337	27 59 37	2331
25	SUN	W.	23 17 46	2441	25 0 23	2453	26 42 42	2467	28 24 41	2482
	a Pegasi	E.	57 0 1	2336	55 14 54	2361	53 30 23	2387	51 46 29	2414
	a Arietis	E.	98 46 44	2127	96 56 26	2141	95 6 30	2156	93 16 56	2170
26	SUN	W.	36 49 12	2564	38 28 56	2583	40 8 14	2601	41 47 7	2621
	a Arietis	E.	84 14 57	2253	82 27 48	2271	80 41 6	2289	78 54 50	2307
	Aldebaran	E.	116 32 8	2310	114 46 23	2326	113 1 1	2342	111 16 2	2358
27	SUN	W.	49 54 55	2719	51 31 9	2741	53 6 55	2761	54 42 14	2782
	a Arietis	E.	70 10 15	2402	68 26 43	2421	66 43 38	2441	65 1 2	2460
	Aldebaran	E.	102 37 14	2446	100 54 45	2465	99 12 42	2483	97 31 5	2502
28	SUN	W.	62 32 7	2884	64 4 46	2905	65 36 59	2924	67 8 47	2945
	a Aquilæ	W.	45 11 47	3849	46 25 59	3795	47 41 6	3750	48 57 0	3711
	a Arietis	E.	56 34 57	2560	54 55 7	2580	53 15 45	2600	51 36 50	2619
	Aldebaran	E.	89 9 34	2596	87 30 34	2616	85 52 1	2635	84 13 54	2654
29	SUN	W.	74 41 30	3043	76 10 50	3060	77 39 48	3079	79 8 23	3098
	a Aquilæ	W.	55 25 15	3582	56 44 9	3566	58 3 20	3554	59 22 45	3543
	a Arietis	E.	43 28 53	2718	41 52 37	2737	40 16 46	2756	38 41 21	2775
	Aldebaran	E.	76 9 38	2747	74 34 1	2766	72 58 49	2784	71 24 0	2802
30	SUN	W.	86 25 56	3183	87 52 26	3198	89 18 37	3214	90 44 29	3229
	a Aquilæ	W.	66 2 4	3516	67 22 10	3515	68 42 17	3515	70 2 24	3515
	Fomalhaut	W.	41 37 6	3816	42 51 52	3772	44 7 23	3735	45 23 33	3702
	Aldebaran	E.	63 35 42	2889	62 3 9	2906	60 30 58	2923	58 59 8	2939
	Pollux	E.	105 30 35	2842	103 57 1	2855	102 23 45	2869	100 50 47	2883
31	SUN	W.	97 49 36	3297	99 13 51	3310	100 37 51	3322	102 1 37	3333
	a Aquilæ	W.	76 42 34	3530	78 2 25	3534	79 22 12	3539	80 41 53	3545
	Fomalhaut	W.	51 51 51	3589	53 10 37	3574	54 29 40	3561	55 48 57	3550
	Aldebaran	E.	51 25 5	3020	49 55 17	3035	48 25 48	3052	46 56 39	3068
	Pollux	E.	93 10 9	2946	91 38 48	2957	90 7 41	2968	88 36 48	2979

GREENWICH MEAN TIME

LUNAR DISTANCES

Day of the Month	Name and Direction of Object		Midnight.	P.L. of Diff.	XV^h.	P.L. of Diff.	XVIII^h.	P.L. of Diff.	XXI^h.	P.L. of Diff.
			° ′ ″		° ′ ″		° ′ ″		° ′ ″	
18	Pollux	W.	89 16 6	[illegible]	91 1 4	[illegible]	92 46 25	[illegible]	94 32 10	[illegible]
	Regulus	W.	52 17 14	[illegible]	54 2 33	[illegible]	55 48 16	[illegible]	57 34 25	[illegible]
	Saturn	E.	46 5 21	[illegible]	44 21 41	[illegible]	42 37 42	[illegible]	40 53 23	[illegible]
	Venus	E.	53 3 35	[illegible]	51 27 47	[illegible]	49 51 36	[illegible]	48 15 1	[illegible]
	Sun	E.	67 2 1	[illegible]	65 24 11	[illegible]	63 45 57	[illegible]	62 7 18	[illegible]
19	Regulus	W.	66 31 11	[illegible]	68 19 43	[illegible]	70 8 38	[illegible]	71 57 55	[illegible]
	Venus	E.	40 6 28	[illegible]	38 27 41	[illegible]	36 48 54	[illegible]	35 9 7	[illegible]
	Sun	E.	53 48 11	[illegible]	52 7 13	[illegible]	50 25 52	[illegible]	48 44 9	[illegible]
20	Regulus	W.	81 9 35	[illegible]	83 0 54	[illegible]	84 52 30	[illegible]	86 44 23	[illegible]
	Jupiter	W.	41 27 11	[illegible]	43 16 28	[illegible]	45 6 8	[illegible]	46 56 10	[illegible]
	Sun	E.	40 10 33	[illegible]	38 26 53	[illegible]	36 42 57	[illegible]	34 58 45	[illegible]
21	Regulus	W.	96 7 31	[illegible]	98 0 47	[illegible]	99 54 12	[illegible]	101 47 46	[illegible]
	Jupiter	W.	56 11 2	[illegible]	58 2 47	[illegible]	59 54 44	[illegible]	61 46 52	[illegible]
	Spica	W.	42 5 32	[illegible]	43 58 36	[illegible]	45 51 51	[illegible]	47 45 16	[illegible]
	Sun	E.	26 14 22	[illegible]	24 28 59	[illegible]	22 43 29	[illegible]	20 57 55	[illegible]
25	Sun	W.	30 6 20	[illegible]	31 47 37	[illegible]	33 28 32	[illegible]	35 9 4	[illegible]
	α Pegasi	E.	50 3 14	[illegible]	48 20 41	[illegible]	46 38 54	[illegible]	44 57 54	[illegible]
	α Arietis	E.	91 27 44	[illegible]	89 38 55	[illegible]	87 50 31	[illegible]	86 2 31	[illegible]
26	Sun	W.	43 25 33	[illegible]	45 3 33	[illegible]	46 41 7	[illegible]	48 18 14	[illegible]
	α Arietis	E.	77 9 0	[illegible]	75 23 38	[illegible]	73 38 43	[illegible]	71 54 15	[illegible]
	Aldebaran	E.	109 31 27	[illegible]	107 47 16	[illegible]	106 3 30	[illegible]	104 20 9	[illegible]
27	Sun	W.	56 17 6	[illegible]	57 51 31	[illegible]	59 25 30	[illegible]	60 59 2	[illegible]
	α Arietis	E.	63 18 53	[illegible]	61 37 12	[illegible]	59 55 59	[illegible]	58 15 14	[illegible]
	Aldebaran	E.	95 49 54	[illegible]	94 9 9	[illegible]	92 28 51	[illegible]	90 48 59	[illegible]
28	Sun	W.	68 40 9	[illegible]	70 11 6	[illegible]	71 41 38	[illegible]	73 11 46	[illegible]
	α Aquilæ	W.	50 13 35	[illegible]	51 30 46	[illegible]	52 48 30	[illegible]	54 6 41	[illegible]
	α Arietis	E.	49 58 21	[illegible]	48 20 19	[illegible]	46 42 44	[illegible]	45 5 35	[illegible]
	Aldebaran	E.	82 36 12	[illegible]	80 58 56	[illegible]	79 22 5	[illegible]	77 45 39	[illegible]
29	Sun	W.	80 36 35	[illegible]	82 4 26	[illegible]	83 31 57	[illegible]	84 59 7	[illegible]
	α Aquilæ	W.	60 42 22	[illegible]	62 2 8	[illegible]	63 22 2	[illegible]	64 42 1	[illegible]
	α Arietis	E.	37 6 21	[illegible]	35 31 47	[illegible]	33 57 39	[illegible]	32 23 56	[illegible]
	Aldebaran	E.	69 49 35	[illegible]	68 15 33	[illegible]	66 41 54	[illegible]	65 8 37	[illegible]
30	Sun	W.	92 10 4	[illegible]	93 35 21	[illegible]	95 0 22	[illegible]	96 25 7	[illegible]
	α Aquilæ	W.	71 22 31	[illegible]	72 42 36	[illegible]	74 2 39	[illegible]	75 22 38	[illegible]
	Fomalhaut	W.	46 40 18	[illegible]	47 57 34	[illegible]	49 15 17	[illegible]	50 33 23	[illegible]
	Aldebaran	E.	57 27 18	[illegible]	55 56 [illegible]	[illegible]	54 25 41	[illegible]	52 55 13	[illegible]
	Pollux	E.	99 18 7	[illegible]	97 45 43	[illegible]	96 13 36	[illegible]	94 41 45	[illegible]
31	Sun	W.	103 25 10	[illegible]	104 48 30	[illegible]	106 11 38	[illegible]	107 34 35	[illegible]
	α Aquilæ	W.	82 1 28	[illegible]	83 20 [illegible]	[illegible]	84 40 [illegible]	[illegible]	85 [illegible] 34	[illegible]
	Fomalhaut	W.	57 8 26	[illegible]	58 28 7	[illegible]	59 47 57	[illegible]	61 7 56	[illegible]
	Aldebaran	E.	45 27 50	[illegible]	43 [illegible] 20	[illegible]	42 31 11	[illegible]	41 3 22	[illegible]
	Pollux	E.	87 6 9	[illegible]	85 35 42	[illegible]	84 5 27	[illegible]	82 35 24	[illegible]

GREENWICH MEAN TIME.

JANUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	20 7 59.44	+14.262	−21 53 31.4	+60.76	1 22.5
2	20 13 34.61	13.655	21 28 44.8	63.06	1 24.2
3	20 18 54.15	12.958	21 3 7.9	64.94	1 25.5
4	20 23 55.83	12.165	20 36 51.4	66.34	1 26.6
5	20 28 37.19	11.264	20 10 7.9	67.18	1 27.3
6	20 32 55.50	+10.243	−19 43 11.9	+67.37	1 27.6
7	20 36 47.83	9.096	19 16 19.8	66.84	1 27.5
8	20 40 11.04	7.816	18 49 49.8	65.51	1 26.9
9	20 43 1.89	6.398	18 24 2.2	63.30	1 25.8
10	20 45 17.05	4.842	17 59 18.9	60.15	1 24.1
11	20 46 53.29	+ 3.156	−17 36 2.4	+56.05	1 21.7
12	20 47 47.63	+ 1.354	17 14 36.0	50.98	1 18.7
13	20 47 57.54	− 0.542	16 55 22.5	44.99	1 14.8
14	20 47 21.16	2.495	16 38 43.0	38.17	1 10.3
15	20 45 57.68	4.460	16 24 55.7	30.67	1 4.9
16	20 43 47.44	− 6.380	−16 14 14.8	+22.67	0 58.8
17	20 40 52.33	8.188	16 6 49.2	14.44	0 52.0
18	20 37 15.87	9.824	16 2 41.4	+ 6.23	0 44.5
19	20 33 3.29	11.186	16 1 47.7	− 1.67	0 36.3
20	20 28 21.42	12.245	16 3 57.1	9.00	0 27.7
21	20 23 18.40	−12.943	−16 8 53.5	−15.54	0 18.8
22	20 18 3.23	13.255	16 16 15.7	21.15	0 9.6
23	20 12 45.25	13.178	16 25 40.4	25.73	0 0.4 23 51.4
24	20 7 33.59	12.737	16 36 42.3	29.26	23 42.5
25	20 2 36.57	11.966	16 48 57.1	31.82	23 34.0
26	19 58 1.36	−10.928	−17 2 2.4	−33.47	23 26.0
27	19 53 53.70	9.681	17 15 37.5	34.33	23 18.5
28	19 50 17.84	8.289	17 29 25.0	34.52	23 11.5
29	19 47 16.54	6.809	17 43 10.2	34.16	23 5.2
30	19 44 51.31	5.292	17 56 40.8	33.32	22 59.4
31	19 43 2.48	− 3.781	−18 9 46.5	−32.10	22 54.2
32	19 41 49.56	− 2.304	−18 22 19.2	−30.57	22 49.6

FEBRUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	19 41 49.56	− 2.304	−18 22 19.2	−30.57	22 49.6
2	19 41 11.45	− 0.884	18 34 11.8	28.77	22 45.4
3	19 41 6.55	+ 0.461	18 45 18.6	26.77	22 42.1
4	19 41 32.94	1.724	18 55 35.1	24.58	22 39.1
5	19 42 28.64	2.902	19 4 57.0	22.22	22 36.5
6	19 43 51.55	+ 3.983	−19 13 20.8	−19.74	22 34.3
7	19 45 39.62	4.990	19 20 43.7	17.14	22 32.5
8	19 47 50.82	5.988	19 27 2.9	14.44	22 31.1
9	19 50 23.24	6.768	19 32 16.2	11.65	22 30.0
10	19 53 15.10	7.542	19 36 21.7	8.80	22 29.2
11	19 56 24.74	+ 8.250	−19 39 17.9	− 5.87	22 28.7
12	19 59 50.62	8.896	19 41 3.0	− 2.88	22 28.4
13	20 3 31.32	9.486	19 41 35.9	+ 0.15	22 28.3
14	20 7 25.55	10.025	19 40 55.4	3.23	22 28.5
15	20 11 32.12	10.516	19 39 0.7	6.34	22 28.9
16	20 15 49.96	+10.965	−19 35 50.9	+ 9.48	22 29.4
17	20 20 18.11	11.374	19 31 25.4	12.65	22 30.1
18	20 24 55.65	11.749	19 25 43.5	15.84	22 30.9
19	20 29 41.81	12.092	19 18 44.8	19.05	22 31.8
20	20 34 35.84	12.406	19 10 28.9	22.28	22 32.9
21	20 39 37.10	+12.694	−19 0 55.4	+25.51	22 34.1
22	20 44 44.96	12.958	18 50 4.3	28.75	22 35.4
23	20 49 58.90	13.200	18 37 55.3	32.00	22 36.7
24	20 55 18.43	13.424	18 24 28.3	35.25	22 38.2
25	21 0 43.11	13.630	18 9 43.3	38.50	22 39.7
26	21 6 12.54	+13.820	−17 53 40.2	+41.75	22 41.4
27	21 11 46.37	13.997	17 36 19.2	45.00	22 43.1
28	21 17 24.28	14.161	17 17 40.2	48.25	22 44.8
29	21 23 5.99	14.313	16 57 43.4	51.49	22 46.6
30	21 28 51.22	14.456	16 36 29.0	54.72	22 48.5
31	21 34 39.78	+14.590	−16 13 57.1	+57.94	22 50.4
32	21 40 31.47	+14.716	−15 50 7.9	+61.16	22 52.4

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter .	3.0	3.4	3.9	4.5	5.0	5.0	4.6
Hor. Parallax .	8.0	9.0	10.4	12.0	13.2	13.3	12.3

Day of the Month.	5th.	10th.	15th.	20th.	25th.
	″	″	″	″	″
Semidiameter . .	4.1	3.8	3.5	3.2	3.0
Hor. Parallax . .	11.1	10.0	9.2	8.5	8.0

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

MARCH.

Day of Month	Apparent Right Ascension. Noon.	Var of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	21 23 5.09	+14.313	−16 57 43.4	+51.40	22 46.6
2	21 28 51.22	14.436	16 36 20.0	54.70	22 48.5
3	21 34 39.78	14.580	16 13 57.1	57.94	22 50.4
4	21 40 31.47	14.716	15 50 7.9	61.16	22 52.4
5	21 46 26.11	14.856	15 25 1.6	64.37	22 54.4
6	21 52 23.57	+14.991	−14 58 38.4	+67.57	22 56.5
7	21 58 23.73	15.120	14 30 58.7	70.75	22 58.6
8	22 4 26.50	15.249	14 2 2.6	73.90	23 0.7
9	22 10 31.81	15.373	13 31 50.5	77.06	23 2.9
10	22 16 39.60	15.376	13 0 22.6	80.14	23 5.1
11	22 22 49.83	+15.477	−12 27 39.2	+83.38	23 7.4
12	22 29 2.30	15.[illegible]	11 53 40.6	86.40	23 9.7
13	22 35 17.59	15.[illegible]	11 18 27.3	89.41	23 12.1
14	22 41 35.24	15.[illegible]	10 41 59.6	92.40	23 14.5
15	22 47 55.22	15.[illegible]	10 4 18.1	95.7[illegible]	23 16.9
16	22 54 17.82	+15.[illegible]	− 9 25 22.9	+98.[illegible]	23 19.4
17	23 0 43.04	16.106	8 45 14.8	101.85	23 21.9
18	23 7 10.96	16.[illegible]	8 3 54.5	104.84	23 24.5
19	23 13 41.67	16.330	7 21 22.7	107.[illegible]	23 27.1
20	23 20 15.27	16.[illegible]	6 37 40.2	110.70	23 29.8
21	23 26 51.07	+16.[illegible]	− 5 52 48.1	+113.[illegible]	23 32.5
22	23 33 31.58	16.700	5 6 47.3	116.41	23 35.3
23	23 40 14.54	16.[illegible]	4 19 39.2	119.00	23 38.1
24	23 47 0.88	17.000	3 31 25.5	122.91	23 41.0
25	23 53 50.70	17.130	2 42 8.0	124.31	23 44.0
26	0 0 44.12	+17.[illegible]	− 1 51 48.9	+127.04	23 47.0
27	0 7 41.26	17.[illegible]	1 0 29.9	129.64	23 50.1
28	0 14 42.21	17.600	− 0 8 16.9	131.[illegible]	23 53.2
29	0 21 47.02	17.[illegible]	+ 0 44 49.5	133.80	23 56.4
30	0 28 55.74	17.903	1 38 44.1	135.71	23 59.7
31	0 36 8.37	+18.[illegible]	+ 2 33 22.0	+137.41	
32	0 43 24.84	+18.[illegible]	+ 3 28 37.7	+138.86	0 3.0

APRIL.

Day of Month	Apparent Right Ascension. Noon.	Var of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	0 43 24.84	+18.[illegible]	+ 3 28 37.7	+138.86	0 3.0
2	0 50 45.06	18.418	4 24 24.8	140.[illegible]	0 6.4
3	0 58 8.80	18.[illegible]	5 20 56.0	140.85	0 9.9
4	1 5 35.85	18.[illegible]	6 17 2.8	141.32	0 13.4
5	1 13 5.80	18.[illegible]	7 13 56.3	141.40	0 17.0
6	1 20 38.19	+18.[illegible]	+ 8 10 6.3	+141.[illegible]	0 20.6
7	1 28 12.45	18.950	9 6 21.6	140.17	0 24.2
8	1 35 47.87	18.[illegible]	10 2 10.4	138.80	0 27.8
9	1 43 23.65	18.[illegible]	10 57 20.4	136.90	0 31.5
10	1 50 58.86	18.[illegible]	11 51 38.3	134.[illegible]	0 35.2
11	1 58 32.48	+18.[illegible]	+12 44 51.2	+131.31	0 38.8
12	2 6 3.39	18.715	13 36 46.3	128.00	0 42.4
13	2 13 30.40	18.[illegible]	14 27 11.0	123.97	0 45.9
14	2 20 52.31	18.[illegible]	15 15 53.2	119.46	0 49.3
15	2 28 7.86	17.[illegible]	16 2 41.8	114.32	0 52.6
16	2 35 15.81	+17.696	+16 47 27.2	+109.[illegible]	0 55.8
17	2 42 14.94	17.[illegible]	17 30 0.9	103.56	0 58.8
18	2 49 4.04	16.[illegible]	18 10 15.9	97.05	1 1.7
19	2 55 42.00	16.[illegible]	18 48 6.3	91.33	1 4.4
20	3 2 7.77	15.[illegible]	19 23 25.2	83.27	1 6.9
21	3 8 20.32	+15.[illegible]	+19 56 18.3	+76.[illegible]	1 9.2
22	3 14 18.73	14.[illegible]	20 26 35.0	70.[illegible]	1 11.2
23	3 20 2.11	13.[illegible]	20 54 17.3	62.05	1 13.0
24	3 25 29.68	13.[illegible]	21 19 25.3	53.60	1 14.5
25	3 30 40.67	12.[illegible]	21 41 59.6	45.[illegible]	1 15.7
26	3 35 34.37	+11.[illegible]	+22 2 1.5	+36.[illegible]	1 16.7
27	3 40 10.12	11.[illegible]	22 19 32.5	29.46	1 17.3
28	3 44 27.31	10.[illegible]	22 34 34.6	20.90	1 17.6
29	3 48 25.38	9.326	22 47 9.9	12.[illegible]	1 17.6
30	3 52 3.80	8.405	22 57 20.5	2.46	1 17.3
31	3 55 22.09	+ 7.[illegible]	+23 5 8.6	+ 16.96	1 16.6
32	3 58 19.82	+ 6.[illegible]	+23 10 36.3	+ 10.76	1 15.6

Day of the Month	2d	7th	12th	17th	22d	27th
	″	″	″	″	″	″
Semidiameter	2.8	2.7	2.6	2.6	2.5	2.5
Hor Parallax	7.6	7.2	7.0	6.8	6.6	6.6

Day of the Month	1st	6th	11th	16th	21st	26th
	″	″	″	″	″	″
Semidiameter	2.5	2.6	2.7	2.9	3.3	3.7
Hor Parallax	6.6	6.8	7.2	7.8	8.7	9.8

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.					
Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.	Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	3 55 22.09	+7.836	+23 5 8.6	+16.56	1 16.6	1	3 38 8.00	− 0.679	+15 36 52.8	−19.42	22 53.3
2	3 58 19.82	6.972	23 10 36.3	10.76	1 15.6	2	3 37 59.90	+ 0.006	15 30 12.0	13.98	22 49.5
3	4 0 56.63	6.094	23 13 45.9	+ 5.06	1 14.3	3	3 38 8.40	0.704	15 25 42.0	8.52	22 46.0
4	4 3 12.24	5.205	23 14 39.7	− 0.56	1 12.6	4	3 38 33.76	1.410	15 23 22.4	− 3.12	22 42.7
5	4 5 6.43	4.310	23 13 19.7	6.08	1 10.5	5	3 39 16.11	2.120	15 23 11.2	+ 2.18	22 39.8
6	4 6 39.11	+3.413	+23 9 48.5	−11.50	1 8.0	6	3 40 15.51	+ 2.830	+15 25 5.7	+ 7.34	22 37.1
7	4 7 50.29	2.520	23 4 8.6	16.80	1 5.3	7	3 41 31.96	3.539	15 29 2.2	12.34	22 34.7
8	4 8 40.14	1.636	22 56 23.0	21.98	1 2.2	8	3 43 5.39	4.245	15 34 56.2	17.15	22 32.6
9	4 9 8.97	+0.767	22 46 35.0	27.00	0 58.8	9	3 44 55.69	4.945	15 42 42.8	21.72	22 30.8
10	4 9 17.26	−0.074	22 34 48.4	31.84	0 55.0	10	3 47 2.73	5.640	15 52 16.5	26.05	22 29.2
11	4 9 5.70	−0.883	+22 21 8.1	−36.47	0 50.8	11	3 49 26.38	+ 6.330	+16 5 31.1	+30.13	22 27.9
12	4 8 35.22	1.650	22 5 39.7	40.84	0 46.4	12	3 52 6.50	7.013	16 16 20.7	33.95	22 26.9
13	4 7 46.90	2.367	21 48 30.0	44.91	0 41.6	13	3 55 2.96	7.691	16 30 38.7	37.50	22 26.1
14	4 6 42.09	3.023	21 29 46.8	48.62	0 36.6	14	3 58 15.64	8.364	16 46 18.4	40.76	22 25.6
15	4 5 22.33	3.611	21 9 39.6	51.91	0 31.4	15	4 1 44.41	9.033	17 3 12.9	43.73	22 25.4
16	4 3 49.39	−4.120	+20 48 19.0	−54.72	0 25.9	16	4 5 29.21	+ 9.700	+17 21 14.9	+46.39	22 25.5
17	4 2 5.25	4.544	20 25 57.1	57.00	0 20.2	17	4 9 29.98	10.364	17 40 17.3	48.75	22 25.8
18	4 0 12.00	4.878	20 2 47.5	58.69	0 14.4	18	4 13 46.68	11.027	18 0 12.6	50.80	22 26.4
19	3 58 11.88	5.116	19 39 4.9	59.75	0 8.5	19	4 18 19.27	11.690	18 20 53.1	52.38	22 27.2
20	3 56 7.22	5.256	19 15 4.7	60.14	{0 2.5; 23 56.5}	20	4 23 7.79	12.354	18 42 10.9	53.91	22 28.3
21	3 54 0.38	−5.298	+18 51 3.4	−59.84	23 50.4	21	4 28 12.25	+13.019	+19 3 57.9	+54.95	22 29.7
22	3 51 53.69	5.242	18 27 17.7	58.85	23 44.4	22	4 33 32.70	13.685	19 26 5.7	55.64	22 31.4
23	3 49 49.49	5.093	18 4 4.2	57.19	23 38.5	23	4 39 9.16	14.354	19 48 25.5	55.95	22 33.3
24	3 47 49.93	4.856	17 41 38.8	54.84	23 32.8	24	4 45 1.69	15.025	20 10 48.2	55.87	22 35.5
25	3 45 57.06	4.536	17 20 16.9	51.88	23 27.1	25	4 51 10.32	15.696	20 33 4.1	55.39	22 37.9
26	3 44 12.79	−4.142	+17 0 12.8	−48.37	23 21.6	26	4 57 35.07	+16.366	+20 55 3.4	+54.48	22 40.7
27	3 42 38.78	3.681	16 41 39.1	44.36	23 16.3	27	5 4 15.89	17.035	21 16 35.6	53.13	22 43.7
28	3 41 16.56	3.161	16 24 47.0	39.92	23 11.2	28	5 11 12.71	17.699	21 37 30.0	51.32	22 47.0
29	3 40 7.39	2.595	16 9 45.7	35.13	23 6.3	29	5 18 25.37	18.354	21 57 35.2	49.03	22 50.5
30	3 39 12.35	1.986	15 56 42.8	30.07	23 1.7	30	5 25 53.60	18.996	22 16 39.6	46.25	22 54.2
31	3 38 32.32	−1.345	+15 45 43.8	−24.81	22 57.4	31	5 33 37.05	+19.621	+22 34 31.2	+42.96	22 58.2
32	3 38 8.00	−0.679	+15 36 52.8	−19.42	22 53.3	32	5 41 35.21	+20.222	+22 50 57.8	+39.18	23 2.5

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter .	4.2	4.8	5.4	5.9	6.1	6.0	5.6
Hor. Parallax .	11.2	12.8	14.3	15.5	16.1	15.8	14.9

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	5.1	4.6	4.1	3.6	3.3	3.0
Hor. Parallax . . .	13.6	12.2	10.8	9.7	8.6	7.8

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month	Apparent Right Ascension. Noon.	Var. of R.A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	5 33 37.05	+[illegible]	+22 34 31.2	+ [illegible]	22 58.2
2	5 41 35.21	[illegible]	22 50 57.8	[illegible]	23 2.5
3	5 49 47.44	[illegible]	23 5 47.6	[illegible]	23 7.0
4	5 58 11.90	[illegible]	23 18 48.4	[illegible]	23 11.7
5	6 6 50.60	[illegible]	23 29 48.7	[illegible]	23 16.6
6	6 15 30.34	+[illegible]	+23 38 37.9	+ [illegible]	23 21.6
7	6 24 37.81	[illegible]	23 45 6.2	[illegible]	23 26.8
8	6 33 44.46	[illegible]	23 49 5.1	6.70	23 32.1
9	6 42 57.69	[illegible]	23 50 27.8	+ 0.11	23 37.5
10	6 52 15.77	[illegible]	23 49 9.1	− 6.70	23 42.9
11	7 1 36.93	+[illegible]	+23 45 5.6	− [illegible]	23 48.4
12	7 10 59.39	[illegible]	23 38 16.0	[illegible]	23 53.8
13	7 20 21.41	[illegible]	23 28 41.0	[illegible]	23 59.2
14	7 29 41.35	[illegible]	23 16 23.2	[illegible]	
15	7 38 57.67	[illegible]	23 1 26.8	[illegible]	0 4.6
16	7 48 8.97	+[illegible]	+22 43 57.3	− [illegible]	0 9.8
17	7 57 14.03	[illegible]	22 24 1.3	[illegible]	0 15.0
18	8 6 11.83	[illegible]	22 1 46.4	[illegible]	0 20.0
19	8 15 1.46	[illegible]	21 37 21.1	[illegible]	0 25.0
20	8 23 42.20	[illegible]	21 10 51.9	[illegible]	0 29.7
21	8 32 13.54	+[illegible]	+20 42 31.9	− [illegible]	0 34.3
22	8 40 35.05	[illegible]	20 12 29.8	[illegible]	0 38.7
23	8 48 46.46	[illegible]	19 40 50.9	[illegible]	0 43.0
24	8 56 47.61	[illegible]	19 7 44.6	[illegible]	0 47.1
25	9 4 38.41	[illegible]	18 33 20.4	[illegible]	0 51.0
26	9 12 18.89	+[illegible]	+17 57 45.6	− [illegible]	0 54.7
27	9 19 49.13	[illegible]	17 21 7.9	[illegible]	0 58.1
28	9 27 9.23	[illegible]	16 43 34.3	[illegible]	1 1.7
29	9 34 19.33	[illegible]	16 5 11.5	[illegible]	1 4.[illegible]
30	9 41 19.64	[illegible]	15 26 5.8	[illegible]	1 7.[illegible]
31	9 48 10.38	+[illegible]	+14 46 21.0	− [illegible]	1 10.8
32	9 54 51.77	+[illegible]	+14 6 8.8	101.17	1 13.6

Day of the Month	6th	10th	14th	20th	26th	30th
	″	″	″	″	″	″
Semidiameter	2.7	2.6	2.5	2.5	2.5	2.6
Hor. Parallax	7.2	6.8	6.6	6.6	6.7	6.9

AUGUST.

Day of Month	Apparent Right Ascension. Noon.	Var. of R.A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	9 54 51.77	+[illegible]	+14 6 8.8	−[illegible]	1 13.6
2	10 1 24.02	[illegible]	13 25 28.3	[illegible]	1 16.2
3	10 7 47.37	[illegible]	12 44 26.3	[illegible]	1 18.6
4	10 14 2.05	[illegible]	12 3 7.5	[illegible]	1 20.9
5	10 20 8.25	[illegible]	11 21 36.1	[illegible]	1 23.1
6	10 26 6.20	+[illegible]	+10 39 56.2	−[illegible]	1 25.1
7	10 31 56.09	[illegible]	9 58 11.6	[illegible]	1 27.0
8	10 37 38.09	[illegible]	9 16 26.2	[illegible]	1 28.7
9	10 43 12.37	[illegible]	8 34 43.3	[illegible]	1 30.3
10	10 48 39.09	[illegible]	7 53 6.4	[illegible]	1 31.8
11	10 53 58.36	+[illegible]	+ 7 11 38.8	−[illegible]	1 33.2
12	10 59 10.29	[illegible]	6 30 23.4	[illegible]	1 34.5
13	11 4 14.96	[illegible]	5 49 23.6	[illegible]	1 35.6
14	11 9 12.41	[illegible]	5 8 42.4	[illegible]	1 36.6
15	11 14 2.69	[illegible]	4 28 22.8	[illegible]	1 37.5
16	11 18 45.79	+[illegible]	+ 3 48 27.8	− [illegible]	1 38.2
17	11 23 21.70	[illegible]	3 9 0.7	[illegible]	1 38.9
18	11 27 50.35	[illegible]	2 30 4.6	[illegible]	1 39.4
19	11 32 11.65	[illegible]	1 51 42.6	[illegible]	1 39.8
20	11 36 25.46	[illegible]	1 13 58.2	[illegible]	1 40.1
21	11 40 31.66	+[illegible]	+ 0 36 54.8	− [illegible]	1 40.2
22	11 44 29.01	[illegible]	+ 0 0 36.1	[illegible]	1 40.2
23	11 48 20.27	[illegible]	− 0 34 54.0	[illegible]	1 40.1
24	11 52 2.14	[illegible]	1 9 31.5	[illegible]	1 39.9
25	11 55 35.50	[illegible]	1 43 12.9	[illegible]	1 39.5
26	11 58 59.33	+ [illegible]	− 2 15 50.4	− [illegible]	1 38.9
27	12 2 13.[illegible]	[illegible]	2 47 22.0	77.33	1 38.2
28	12 5 18.19	[illegible]	3 17 41.3	[illegible]	1 37.4
29	12 8 11.95	[illegible]	3 46 42.3	[illegible]	1 36.4
30	12 10 54.44	[illegible]	4 14 18.5	[illegible]	1 35.1
31	12 13 24.95	+ [illegible]	− 4 40 22.7	− [illegible]	1 33.6
32	12 15 42.74	+ [illegible]	− 5 4 47.4	− [illegible]	1 32.0

Day of the Month	6th	9th	14th	19th	24th	29th
	″	″	″	″	″	″
Semidiameter	2.7	2.9	3.0	3.2	3.5	3.7
Hor. Parallax	7.2	7.6	8.0	8.5	9.2	9.9

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	12 15 42.74	+5.465	−5 4 47.4	− 58.84	1 32.0
2	12 17 46.97	4.881	5 27 24.3	54.17	1 30.3
3	12 19 36.73	4.239	5 48 4.2	49.09	1 28.0
4	12 21 11.10	3.598	6 6 37.4	43.60	1 25.6
5	12 22 29.08	2.894	6 22 53.2	37.64	1 22.9
6	12 23 29.64	+2.146	−6 36 40.3	− 31.19	1 20.0
7	12 24 11.73	1.354	6 47 46.4	24.23	1 16.7
8	12 24 34.31	+0.520	6 55 59.1	16.73	1 13.1
9	12 24 36.39	−0.333	7 1 5.1	8.67	1 9.2
10	12 24 17.08	1.262	7 2 51.0	− 0.06	1 5.0
11	12 23 35.63	−2.197	−7 1 3.8	+ 9.08	1 0.3
12	12 22 31.51	3.190	6 55 31.0	18.72	0 55.3
13	12 21 4.44	4.104	6 46 1.6	28.78	0 49.9
14	12 19 14.63	5.043	6 32 27.0	39.14	0 44.2
15	12 17 2.66	5.946	6 14 42.1	49.62	0 38.1
16	12 14 29.74	−6.785	−5 52 46.0	+ 60.02	0 31.6
17	12 11 37.72	7.533	5 26 43.9	70.08	0 24.8
18	12 8 29.15	8.158	4 56 47.6	79.48	0 17.7
19	12 5 7.35	8.631	4 23 17.1	87.87	0 10.4
20	12 1 36.34	8.920	3 46 40.8	94.90	0 2.9 / 23 [illegible]
21	11 58 0.83	−9.005	−3 7 35.4	+100.24	23 48.0
22	11 54 25.98	8.861	2 26 45.3	103.58	23 40.7
23	11 50 57.36	8.484	1 45 1.2	104.71	23 33.5
24	11 47 40.60	7.874	1 3 17.8	103.51	23 26.6
25	11 44 41.18	7.041	−0 22 31.4	99.96	23 20.1
26	11 42 4.27	−6.005	+0 16 22.5	+ 94.18	23 14.0
27	11 39 54.41	4.793	0 52 32.9	86.36	23 8.4
28	11 38 15.31	3.444	1 25 13.9	76.79	23 3.3
29	11 37 9.90	1.985	1 53 47.4	65.79	22 58.8
30	11 36 40.12	−0.482	2 17 43.5	53.74	22 55.0
31	11 36 46.99	+1.035	+2 36 40.8	+ 40.96	22 51.8
32	11 37 30.66	+2.580	+2 50 26.5	+ 27.82	22 49.2

OCTOBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	11 36 46.99	+ 1.035	+ 2 36 40.8	+ 40.96	22 51.8
2	11 37 30.66	2.580	2 50 26.5	27.82	22 49.2
3	11 38 50.49	4.063	2 58 55.4	14.61	22 47.1
4	11 40 45.17	5.480	3 2 9.2	+ 1.60	22 45.6
5	11 43 12.83	6.809	3 0 15.6	− 10.98	22 44.6
6	11 46 11.21	+ 8.098	+ 2 53 26.8	− 22.97	22 44.1
7	11 49 37.75	9.155	2 41 59.1	34.80	22 44.0
8	11 53 29.74	10.158	2 26 11.7	44.60	22 44.3
9	11 57 44.41	11.046	2 6 25.4	54.11	22 44.9
10	12 2 19.07	11.824	1 43 2.0	62.68	22 45.8
11	12 7 11.10	+12.495	+ 1 16 24.0	− 70.32	22 47.0
12	12 12 18.04	13.068	0 46 53.7	77.05	22 48.3
13	12 17 37.65	13.552	+ 0 14 52.4	82.91	22 49.9
14	12 23 7.90	13.956	− 0 19 19.4	87.94	22 51.6
15	12 28 46.97	14.290	0 55 22.7	92.21	22 53.4
16	12 34 33.31	+14.562	− 1 32 59.6	− 95.75	22 55.3
17	12 40 25.55	14.785	2 11 53.7	98.65	22 57.3
18	12 46 22.53	14.959	2 51 50.3	100.97	22 59.4
19	12 52 23.28	15.098	3 32 36.0	102.76	23 1.6
20	12 58 26.99	15.206	4 13 59.1	104.08	23 3.7
21	13 4 32.97	+15.289	− 4 55 48.6	−104.98	23 5.9
22	13 10 40.72	15.353	5 37 55.3	105.52	23 8.1
23	13 16 49.78	15.400	6 20 10.8	105.72	23 10.3
24	13 22 59.81	15.435	7 2 27.5	105.65	23 12.6
25	13 29 10.58	15.461	7 44 39.1	105.29	23 14.8
26	13 35 21.89	+15.480	− 8 26 39.6	−104.72	23 17.1
27	13 41 33.59	15.495	9 8 24.0	103.95	23 19.3
28	13 47 45.61	15.506	9 49 47.7	103.00	23 21.6
29	13 53 57.89	15.517	10 30 46.8	101.90	23 23.9
30	14 0 10.43	15.528	11 11 17.5	100.65	23 26.2
31	14 6 23.23	+15.539	−11 51 16.9	− 99.28	23 28.4
32	14 12 36.30	+15.551	−12 30 41.8	− 97.79	23 30.7

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.	Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . . .	4.1	4.5	4.9	5.1	5.1	4.6	Semidiameter . . .	4.0	3.4	3.0	2.7	2.5	2.4
Hor. Parallax . .	10.8	11.9	12.9	13.6	13.4	12.2	Hor. Parallax . . .	10.5	9.0	8.0	7.2	6.7	6.4

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R.A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	14 12 56.30	+15.5[illegible]	−12 30 41.8	−[illegible].79	23 30.7
2	14 18 49.70	[illegible]	13 9 20.8	[illegible]	23 33.0
3	14 25 3.50	[illegible]	13 47 38.4	[illegible]	23 35.3
4	14 31 17.76	[illegible]	14 25 5.7	[illegible]	23 37.6
5	14 37 32.56	[illegible]	15 1 49.5	[illegible]	23 39.9
6	14 43 47.97	+15.6[illegible]	−15 37 48.0	−[illegible]	23 42.3
7	14 50 4.07	[illegible]	16 12 50.5	[illegible]	23 44.6
8	14 56 20.97	[illegible]	16 47 22.3	[illegible]	23 47.0
9	15 2 38.73	[illegible]	17 20 54.9	[illegible]	23 49.3
10	15 8 57.44	[illegible]	17 53 35.7	[illegible]	23 51.7
11	15 15 17.18	+15.8[illegible]	−18 25 23.3	−[illegible]	23 54.1
12	15 21 38.08	[illegible]	18 56 16.4	[illegible]	23 56.6
13	15 28 0.04	[illegible]	19 26 13.5	[illegible]	23 59.0
14	15 34 23.50	[illegible]	19 55 13.1	71.07	
15	15 40 47.85	[illegible]	20 23 13.9	[illegible]	0 1.5
16	15 47 13.74	+16.0[illegible]	−20 50 14.5	−[illegible]	0 4.0
17	15 53 41.01	[illegible]	21 16 13.7	[illegible]	0 6.5
18	16 0 9.69	[illegible]	21 41 9.9	[illegible]	0 9.0
19	16 6 39.79	[illegible]	22 5 1.8	[illegible]	0 11.6
20	16 13 11.38	[illegible]	22 27 48.1	[illegible]	0 14.2
21	16 19 44.27	+16.4[illegible]	−22 49 27.3	−[illegible]	0 16.8
22	16 26 18.61	[illegible]	23 9 57.9	[illegible]	0 19.4
23	16 32 54.31	16.515	23 29 18.7	[illegible]	0 22.1
24	16 39 31.31	[illegible]	23 47 28.1	[illegible]	0 24.8
25	16 46 9.52	16.617	24 4 24.6	[illegible]	0 27.5
26	16 52 48.85	+16.6[illegible]	−24 20 6.9	−[illegible]	0 30.2
27	16 59 29.19	[illegible]	24 34 33.5	[illegible]	0 33.0
28	17 6 10.40	[illegible]	24 47 43.0	[illegible]	0 35.7
29	17 12 52.31	[illegible]	24 59 34.0	[illegible]	0 38.4
30	17 19 34.74	[illegible]	25 10 5.2	[illegible]	0 41.2
31	17 26 17.43	+16.7[illegible]	−25 19 15.1	−[illegible]	0 44.0
32	17 33 0.15	+16.776	−25 27 2.4	−17.76	0 46.7

DECEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R.A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	17 26 17.43	+16.7[illegible]	−25 19 15.1	−[illegible]	0 44.0
2	17 33 0.15	16.776	25 27 2.4	17.76	0 46.7
3	17 39 42.90	[illegible]	25 33 26.1	[illegible]	0 49.5
4	17 46 24.41	[illegible]	25 38 25.0	[illegible]	0 52.3
5	17 53 5.22	[illegible]	25 41 58.0	7.07	0 55.0
6	17 59 44.59	+16.6[illegible]	−25 44 4.0	−3.41	0 57.7
7	18 6 22.01	[illegible]	25 44 42.5	+0.03	1 0.4
8	18 12 56.92	[illegible]	25 43 51.9	[illegible]	1 3.0
9	18 19 28.68	[illegible]	25 41 34.5	[illegible]	1 5.6
10	18 25 56.56	[illegible]	25 37 47.6	11.50	1 8.2
11	18 32 19.74	+15.835	−25 32 32.3	+[illegible]	1 10.6
12	18 38 37.28	[illegible]	25 25 49.2	[illegible]	1 12.9
13	18 44 48.16	[illegible]	25 17 39.3	[illegible]	1 15.2
14	18 50 51.13	[illegible]	25 8 4.2	[illegible]	1 17.3
15	18 56 44.87	[illegible]	24 57 6.3	[illegible]	1 19.2
16	19 2 27.83	+14.[illegible]	−24 44 48.3	+[illegible]	1 21.0
17	19 7 58.32	[illegible]	24 31 14.4	[illegible]	1 22.6
18	19 13 14.[illegible]	[illegible]	24 16 29.9	[illegible]	1 23.9
19	19 18 13.[illegible]	[illegible]	24 0 37.8	[illegible]	1 24.9
20	19 22 54.15	[illegible]	23 43 48.2	[illegible]	1 25.6
21	19 27 12.77	+10.[illegible]	−23 26 8.3	+[illegible]	1 26.0
22	19 31 6.6[illegible]	[illegible]	23 7 48.0	[illegible]	1 25.9
23	19 34 32.6[illegible]	[illegible]	22 49 59.2	47.50	1 25.3
24	19 37 [illegible]	[illegible]	22 29 51.6	[illegible]	1 24.2
25	19 39 47.0[illegible]	[illegible]	22 10 42.0	47.76	1 22.6
26	19 41 28.10	+3.[illegible]	−21 51 44.3	+[illegible]	1 20.4
27	19 42 27.14	+1.[illegible]	21 33 14.0	[illegible]	1 17.4
28	19 42 40.8[illegible]	−0.4[illegible]	21 15 26.9	[illegible]	1 13.6
29	19 42 6.70	[illegible]	20 58 39.1	[illegible]	1 9.1
30	19 40 42.86	[illegible]	20 43 1.[illegible]	[illegible]	1 3.7
31	19 38 28.92	−6.6[illegible]	−20 28 40.4	+31.[illegible]	0 57.5
32	19 35 26.01	−8.6[illegible]	−20 16 11.7	+[illegible]	0 50.5

Day of the Month.	1st	7th	13th	17th	22d	27th
	″	″	″	″	″	″
Semi-diameter	2.4	2.3	2.3	2.3	2.4	2.4
Hor. Parallax	6.2	6.2	6.1	6.1	6.2	6.4

Day of the Month.	3d	7th	13th	17th	23d	27th	30th
	″	″	″	″	″	″	″
Semi-diameter	2.5	2.6	2.9	3.1	3.5	4.0	4.6
Hor. Parallax	6.6	7.0	7.5	8.2	9.2	10.6	12.2

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	21 45 50.07	+11.437	−15 19 17.7	+63.76	3 0.3
2	21 50 23.78	11.372	14 53 36.2	64.68	3 0.9
3	21 54 55.90	11.306	14 27 33.2	65.57	3 1.5
4	21 59 26.44	11.240	14 1 9.3	66.42	3 2.1
5	22 3 55.40	11.175	13 34 25.4	67.24	3 2.6
6	22 8 22.81	+11.110	−13 7 22.2	+68.02	3 3.1
7	22 12 48.68	11.046	12 40 0.6	68.77	3 3.6
8	22 17 13.02	10.982	12 12 21.4	69.49	3 4.1
9	22 21 35.83	10.919	11 44 25.5	70.17	3 4.5
10	22 25 57.14	10.856	11 16 13.7	70.82	3 4.9
11	22 30 16.95	+10.794	−10 47 46.8	+71.43	3 5.3
12	22 34 35.28	10.733	10 19 5.5	72.01	3 5.7
13	22 38 52.15	10.672	9 50 10.8	72.55	3 6.0
14	22 43 7.57	10.613	9 21 3.4	73.06	3 6.3
15	22 47 21.56	10.554	8 51 44.0	73.54	3 6.6
16	22 51 34.14	+10.495	− 8 22 13.5	+73.99	3 6.9
17	22 55 45.32	10.438	7 52 32.6	74.41	3 7.1
18	22 59 55.13	10.380	7 22 42.0	74.80	3 7.3
19	23 4 3.59	10.324	6 52 42.5	75.16	3 7.5
20	23 8 10.72	10.269	6 22 34.8	75.48	3 7.7
21	23 12 16.53	+10.215	− 5 52 19.6	+75.77	3 7.8
22	23 16 21.05	10.162	5 21 57.8	76.04	3 8.0
23	23 20 24.30	10.110	4 51 29.9	76.27	3 8.1
24	23 24 26.30	10.058	4 20 56.8	76.48	3 8.2
25	23 28 27.07	10.007	3 50 19.1	76.66	3 8.3
26	23 32 26.62	+ 9.957	− 3 19 37.4	+76.81	3 8.4
27	23 36 24.97	9.907	2 48 52.6	76.93	3 8.4
28	23 40 22.14	9.858	2 18 5.3	77.01	3 8.4
29	23 44 18.14	9.809	1 47 16.3	77.06	3 8.4
30	23 48 12.98	9.761	1 16 26.3	77.09	3 8.3
31	23 52 6.67	+ 9.713	− 0 45 36.0	+77.09	3 8.3
32	23 55 59.22	+ 9.666	− 0 14 46.1	+77.06	3 8.2

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter .	8.3	8.6	8.9	9.3	9.6	10.0	10.5
Hor. Parallax .	8.6	8.9	9.2	9.6	10.0	10.4	10.8

FEBRUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	23 55 59.22	+9.666	− 0 14 46.1	+77.06	3 8.2
2	23 59 50.63	9.619	+ 0 16 2.6	77.00	3 8.1
3	0 3 40.90	9.571	0 46 49.5	76.90	3 8.0
4	0 7 30.03	9.524	1 17 33.7	76.77	3 7.9
5	0 11 18.03	9.476	1 48 14.5	76.61	3 7.8
6	0 15 4.88	+9.428	+ 2 18 51.3	+76.43	3 7.6
7	0 18 50.58	9.380	2 49 23.2	76.22	3 7.4
8	0 22 35.12	9.331	3 19 49.6	75.97	3 7.2
9	0 26 18.49	9.283	3 50 9.8	75.70	3 7.0
10	0 30 0.67	9.232	4 20 22.9	75.39	3 6.8
11	0 33 41.66	+9.183	+ 4 50 28.4	+75.06	3 6.5
12	0 37 21.42	9.131	5 20 25.4	74.69	3 6.2
13	0 40 59.94	9.079	5 50 13.4	74.30	3 5.9
14	0 44 37.20	9.026	6 19 51.5	73.88	3 5.6
15	0 48 13.19	8.972	6 49 19.2	73.43	3 5.3
16	0 51 47.87	+8.917	+ 7 18 35.7	+72.95	3 4.9
17	0 55 21.22	8.861	7 47 40.5	72.45	3 4.5
18	0 58 53.21	8.804	8 16 32.8	71.92	3 4.1
19	1 2 23.81	8.745	8 45 12.1	71.36	3 3.7
20	1 5 52.97	8.685	9 13 37.7	70.77	3 3.2
21	1 9 20.65	+8.623	+ 9 41 48.9	+70.16	3 2.7
22	1 12 46.83	8.559	10 9 45.2	69.52	3 2.1
23	1 16 11.45	8.493	10 37 25.8	68.86	3 1.6
24	1 19 34.47	8.425	11 4 50.2	68.17	3 1.0
25	1 22 55.82	8.354	11 31 57.7	67.45	3 0.4
26	1 26 15.44	+8.281	+11 58 47.7	+66.70	2 59.8
27	1 29 33.27	8.205	12 25 19.4	65.93	2 59.2
28	1 32 49.25	8.126	12 51 32.3	65.13	2 58.5
29	1 36 3.27	8.043	13 17 25.6	64.30	2 57.8
30	1 39 15.26	7.957	13 42 58.6	63.45	2 57.0
31	1 42 25.13	+7.866	+14 8 10.7	+62.56	2 56.2
32	1 45 32.78	+7.771	+14 33 1.1	+61.64	2 55.4

Day of the Month.	5th.	10th.	15th.	20th.	25th.
	″	″	″	″	″
Semidiameter . .	11.0	11.5	12.1	12.8	13.6
Hor. Parallax . .	11.4	11.9	12.6	13.3	14.0

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

Day of Month	MARCH Apparent Right Ascension (Noon)	Var. of R.A. for 1 Hour (Noon)	Apparent Declination (Noon)	Var. of Decl. for 1 Hour (Noon)	Meridian Passage	Day of Month	APRIL Apparent Right Ascension (Noon)	Var. of R.A. for 1 Hour (Noon)	Apparent Declination (Noon)	Var. of Decl. for 1 Hour (Noon)	Meridian Passage
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	1 36 3.27	+8.041	+13 17 25.6	+64.30	2 57.8	1	2 47 11.47	+2.080	+22 45 22.5	+20.30	2 6.4
2	1 39 15.26	7.97	13 42 58.6	63.43	2 57.0	2	2 47 57.40	1.760	22 53 7.2	18.00	2 3.2
3	1 42 25.13	7.888	14 8 10.7	62.46	2 56.2	3	2 48 34.91	1.368	22 59 56.1	15.85	1 59.9
4	1 45 34.78	7.771	14 33 1.1	61.44	2 55.4	4	2 49 3.75	1.020	23 5 47.1	13.30	1 56.5
5	1 48 38.07	7.671	14 57 29.1	60.49	2 54.6	5	2 49 23.70	0.640	23 10 38.1	10.84	1 52.9
6	1 51 40.63	+7.561	+15 21 33.9	+59.71	2 53.7	6	2 49 34.54	+0.260	+23 14 26.8	+8.29	1 49.1
7	1 54 41.14	7.448	15 45 14.8	[illegible]	2 52.8	7	2 49 36.13	0.127	23 17 10.7	5.66	1 45.2
8	1 57 38.67	7.320	16 8 31.0	57.46	2 51.8	8	2 49 28.31	0.520	23 18 47.3	+2.90	1 41.1
9	2 0 33.35	7.188	16 31 21.9	56.38	2 50.7	9	2 49 10.99	0.920	23 19 14.3	−0.36	1 36.9
10	2 3 25.01	7.046	16 53 46.5	55.07	2 49.6	10	2 48 44.10	1.320	23 18 29.3	3.40	1 32.5
11	2 6 13.51	+6.904	+17 15 44.1	+54.33	2 48.4	11	2 48 7.60	−1.720	+23 16 30.2	−6.53	1 28.0
12	2 8 58.68	6.812	17 37 13.9	53.13	2 47.2	12	2 47 21.60	2.126	23 13 14.9	9.75	1 23.3
13	2 11 40.35	6.644	17 58 15.0	51.96	2 46.0	13	2 46 26.16	2.529	23 8 41.6	13.05	1 18.4
14	2 14 18.35	6.500	18 18 46.6	50.49	2 44.7	14	2 45 21.48	2.882	23 2 48.6	16.41	1 13.4
15	2 16 52.40	6.341	18 38 47.8	49.41	2 43.3	15	2 44 7.82	3.294	22 55 34.4	19.80	1 8.2
16	2 19 22.50	+6.188	+18 58 17.9	+48.29	2 41.9	16	2 42 45.90	−3.640	+22 46 57.9	−23.04	1 2.9
17	2 21 48.40	5.980	19 17 15.9	46.76	2 40.4	17	2 41 14.90	3.944	22 36 58.7	26.40	0 57.5
18	2 24 9.77	5.791	19 35 40.9	45.13	2 38.8	18	2 39 36.51	4.297	22 25 36.8	29.83	0 52.0
19	2 26 26.45	5.590	19 53 32.0	43.36	2 37.1	19	2 37 50.92	4.565	22 12 52.8	33.33	0 46.3
20	2 28 38.26	5.380	20 10 48.1	41.61	2 35.4	20	2 35 58.76	4.805	21 58 47.9	36.87	0 40.5
21	2 30 44.56	+5.160	+20 27 28.2	+40.00	2 33.6	21	2 34 0.71	−5.036	+21 43 24.0	−40.11	0 34.6
22	2 32 45.12	4.940	20 43 31.3	38.35	2 31.6	22	2 31 57.53	5.220	21 26 43.7	43.00	0 28.6
23	2 34 42.10	4.700	20 58 58.3	37.73	2 29.6	23	2 29 50.06	5.390	21 8 50.4	46.18	0 22.6
24	2 36 32.00	4.440	21 13 41.8	36.07	2 27.5	24	2 27 39.17	5.516	20 49 48.1	48.96	0 16.5
25	2 38 15.97	4.200	21 27 46.7	34.38	2 25.2	25	2 25 25.76	5.609	20 29 41.8	51.58	0 10.3
26	2 39 53.54	+3.935	+21 41 9.7	+32.97	2 22.9	26	2 23 10.76	−5.690	+20 8 36.9	−53.84	[illegible]
27	2 41 24.12	3.641	21 53 49.4	30.73	2 20.5	27	2 20 55.27	5.680	19 46 39.6	55.80	23 51.8
28	2 42 48.14	3.346	22 5 44.4	28.89	2 17.9	28	2 18 39.71	5.640	19 23 56.6	57.44	23 45.7
29	2 44 5.20	3.040	22 16 53.0	26.88	2 15.2	29	2 16 25.55	5.560	19 0 35.4	58.97	23 39.6
30	2 45 15.36	2.720	22 27 13.5	24.80	2 12.4	30	2 14 13.51	5.420	18 36 43.6	60.16	23 33.5
31	2 46 17.37	+2.403	+22 36 44.0	+22.70	2 9.5	31	2 12 4.44	−5.300	+18 12 29.1	−61.08	23 27.4
32	2 47 11.47	+2.080	+22 45 22.5	+20.30	2 6.4	32	2 9 59.18	−5.134	+17 48 0.0	−61.90	23 21.4

Day of the Month	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month	1st.	6th.	11th.	16th.	21st.	26th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter	14.4	15.4	16.5	17.7	19.1	20.7	Semidiameter	22.4	24.2	26.0	27.8	29.1	31.4
Hor. Parallax	14.9	16.0	17.1	18.4	19.8	21.4	Hor. Parallax	23.2	25.1	27.0	28.7	30.1	30.8

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	2 12 4.44	−5.310	+18 12 29.1	−60.96	23 27.4
2	2 9 59.18	5.134	17 48 0.0	61.40	23 21.4
3	2 7 58.52	4.927	17 23 24.5	61.50	23 15.6
4	2 6 3.18	4.691	16 58 50.8	61.25	23 9.9
5	2 4 13.82	4.428	16 34 27.0	60.68	23 4.3
6	2 2 31.03	−4.141	+16 10 20.7	−59.79	22 58.8
7	2 0 55.36	3.834	15 46 39.2	58.61	22 53.4
8	1 59 27.27	3.511	15 23 29.4	57.16	22 48.2
9	1 58 7.13	3.178	15 0 57.5	55.46	22 43.1
10	1 56 55.26	2.821	14 39 9.3	53.52	22 38.1
11	1 55 51.94	−2.460	+14 18 10.1	−51.37	22 33.2
12	1 54 57.36	2.092	13 58 4.5	49.05	22 28.5
13	1 54 11.66	1.719	13 38 56.7	46.58	22 24.0
14	1 53 34.92	1.344	13 20 49.8	43.98	22 19.6
15	1 53 7.22	0.968	13 3 46.5	41.28	22 15.3
16	1 52 48.53	−0.593	+12 47 49.1	−38.51	22 11.2
17	1 52 38.81	−0.220	12 32 58.8	35.68	22 7.2
18	1 52 37.97	+0.148	12 19 16.8	32.81	22 3.4
19	1 52 45.87	0.510	12 6 43.9	29.93	21 59.7
20	1 53 2.37	0.865	11 55 20.2	27.05	21 56.2
21	1 53 27.31	+1.214	+11 45 5.2	−24.20	21 52.8
22	1 54 0.51	1.554	11 35 58.3	21.38	21 49.5
23	1 54 41.75	1.885	11 27 58.8	18.59	21 46.4
24	1 55 30.82	2.206	11 21 5.5	15.86	21 43.4
25	1 56 27.48	2.517	11 15 16.9	13.20	21 40.5
26	1 57 31.51	+2.819	+11 10 31.4	−10.60	21 37.8
27	1 58 42.67	3.111	11 6 47.4	8.08	21 35.2
28	2 0 0.73	3.394	11 4 3.0	5.63	21 32.7
29	2 1 25.46	3.667	11 2 16.4	3.27	21 30.3
30	2 2 56.62	3.930	11 1 25.4	− 0.99	21 27.9
31	2 4 33.97	+4.184	+11 1 28.1	+ 1.22	21 25.6
32	2 6 17.30	+4.429	+11 2 22.6	+ 3.32	21 23.5

JUNE.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	2 6 17.30	+4.429	+11 2 22.6	+ 3.32	21 23.5
2	2 8 6.41	4.665	11 4 6.7	5.34	21 21.5
3	2 10 1.09	4.893	11 6 38.4	7.28	21 19.5
4	2 12 1.15	5.113	11 9 55.6	9.14	21 17.6
5	2 14 6.40	5.326	11 13 56.4	10.92	21 15.8
6	2 16 16.66	+5.532	+11 18 38.9	+12.61	21 14.1
7	2 18 31.77	5.730	11 24 1.1	14.22	21 12.5
8	2 20 51.57	5.922	11 30 1.0	15.76	21 11.0
9	2 23 15.90	6.108	11 36 36.8	17.21	21 9.5
10	2 25 44.63	6.268	11 43 46.5	18.59	21 8.1
11	2 28 17.61	+6.462	+11 51 28.4	+19.89	21 6.8
12	2 30 54.72	6.631	11 59 40.7	21.12	21 5.5
13	2 33 35.82	6.795	12 8 21.6	22.28	21 4.3
14	2 36 20.81	6.954	12 17 29.4	23.36	21 3.2
15	2 39 9.57	7.109	12 27 2.3	24.37	21 2.1
16	2 42 1.99	+7.260	+12 36 58.6	+25.31	21 1.1
17	2 44 57.98	7.407	12 47 16.8	26.19	21 0.1
18	2 47 57.44	7.549	12 57 55.2	27.00	20 59.2
19	2 51 0.26	7.687	13 8 52.3	27.74	20 58.3
20	2 54 6.36	7.822	13 20 6.3	28.41	20 57.5
21	2 57 15.65	+7.953	+13 31 35.7	+29.02	20 56.8
22	3 0 28.05	8.081	13 43 19.0	29.57	20 56.1
23	3 3 43.47	8.205	13 55 14.8	30.06	20 55.5
24	3 7 1.82	8.325	14 7 21.6	30.49	20 54.9
25	3 10 23.04	8.443	14 19 37.9	30.86	20 54.3
26	3 13 47.05	+8.558	+14 32 2.4	+31.17	20 53.8
27	3 17 13.78	8.670	14 44 33.8	31.43	20 53.4
28	3 20 43.17	8.779	14 57 10.6	31.63	20 53.0
29	3 24 15.14	8.886	15 9 51.7	31.78	20 52.6
30	3 27 49.65	8.991	15 22 35.9	31.88	20 52.3
31	3 31 26.64	+9.093	+15 35 21.9	+31.93	20 52.0
32	3 35 6.06	+9.193	+15 48 8.5	+31.93	20 51.7

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter .	29.8	29.0	27.6	25.8	23.9	22.1	20.3
Hor. Parallax .	30.8	30.0	28.5	26.7	24.8	22.8	21.1

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	18.8	17.4	16.1	15.0	14.0	13.2
Hor. Parallax . . .	19.4	18.0	16.7	15.6	14.5	13.6

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY					
Day of Month	Apparent Right Ascension	Var. of R.A. for 1 Hour	Apparent Declination	Var. of Decl. for 1 Hour	Meridian Passage
	Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m
1	3 31 26.64	+9.[illegible]	+15 35 21.9	+31.[illegible]	20 52.0
2	3 35 6.06	9.181	15 48 8.5	31.[illegible]	20 51.7
3	3 38 47.86	9.[illegible]	16 0 54.6	31.[illegible]	20 51.5
4	3 42 31.99	9.[illegible]	16 13 38.9	31.[illegible]	20 51.3
5	3 46 18.41	9.[illegible]	16 26 20.5	31.[illegible]	20 51.2
6	3 50 7.[illegible]	+9.575	+16 38 58.2	+31.47	20 51.1
7	3 53 57.97	9.[illegible]	16 51 30.9	31.[illegible]	20 51.1
8	3 57 51.05	9.756	17 3 57.6	30.[illegible]	20 51.1
9	4 1 46.28	9.843	17 16 17.4	30.66	20 51.1
10	4 5 43.62	9.932	17 28 29.1	30.31	20 51.2
11	4 9 43.04	+10.018	+17 40 31.8	+29.[illegible]	20 51.2
12	4 13 44.53	10.103	17 52 24.5	29.[illegible]	20 51.3
13	4 17 48.05	10.187	18 4 6.3	29.[illegible]	20 51.4
14	4 21 53.56	10.270	18 15 36.2	28.[illegible]	20 51.6
15	4 26 1.04	10.351	18 26 53.2	27.[illegible]	20 51.8
16	4 30 10.45	+10.431	+18 37 56.3	+27.33	20 52.0
17	4 34 21.76	10.[illegible]	18 48 44.7	26.[illegible]	20 52.3
18	4 38 34.94	10.[illegible]	18 59 17.5	26.[illegible]	20 52.6
19	4 42 49.95	10.[illegible]	19 9 33.8	25.[illegible]	20 53.0
20	4 47 6.75	10.[illegible]	19 19 32.6	24.[illegible]	20 53.3
21	4 51 25.31	+10.[illegible]	+19 29 13.2	+23.[illegible]	20 53.7
22	4 55 45.59	10.[illegible]	19 38 34.7	23.[illegible]	20 54.1
23	5 0 7.54	10.[illegible]	19 47 36.3	22.14	20 54.5
24	5 4 31.13	11.004	19 56 17.3	21.[illegible]	20 55.0
25	5 8 56.32	11.070	20 4 36.9	20.[illegible]	20 55.5
26	5 13 23.05	+11.141	+20 12 34.2	+19.[illegible]	20 56.0
27	5 17 51.28	11.[illegible]	20 20 8.7	18.43	20 56.6
28	5 22 [illegible]	11.[illegible]	20 27 19.5	17.41	20 57.2
29	5 26 51.[illegible]	11.[illegible]	20 34 6.1	16.41	20 57.8
30	5 31 24.57	11.[illegible]	20 40 27.8	15.38	20 58.4
31	5 35 58.[illegible]	+11.[illegible]	+20 46 23.0	+14.[illegible]	20 59.1
32	5 40 33.49	+11.[illegible]	+20 51 53.9	+13.[illegible]	20 59.8

AUGUST					
Day of Month	Apparent Right Ascension	Var. of R.A. for 1 Hour	Apparent Declination	Var. of Decl. for 1 Hour	Meridian Passage
	Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m
1	5 40 33.49	+11.[illegible]	+20 51 53.9	+13.[illegible]	20 59.8
2	5 45 9.83	11.[illegible]	20 56 57.2	12.07	21 0.5
3	5 49 47.37	11.[illegible]	21 1 33.2	10.[illegible]	21 1.2
4	5 54 26.07	11.[illegible]	21 5 41.4	9.73	21 1.9
5	5 59 5.87	11.[illegible]	21 9 21.3	8.57	21 2.6
6	6 3 46.73	+11.[illegible]	+21 12 32.4	+7.33	21 3.4
7	6 8 28.62	11.[illegible]	21 15 14.1	6.12	21 4.1
8	6 13 11.48	11.[illegible]	21 17 26.1	4.87	21 4.9
9	6 17 55.27	11.[illegible]	21 19 7.9	3.60	21 5.7
10	6 22 39.95	11.[illegible]	21 20 19.1	2.32	21 6.5
11	6 27 25.48	+11.[illegible]	+21 20 59.3	+1.[illegible]	21 7.3
12	6 32 11.82	11.[illegible]	21 21 8.1	−0.[illegible]	21 8.1
13	6 36 58.91	11.[illegible]	21 20 45.2	1.[illegible]	21 8.9
14	6 41 46.71	[illegible]	21 19 50.3	2.[illegible]	21 9.8
15	6 46 35.17	12.[illegible]	21 18 23.1	4.31	21 10.7
16	6 51 24.23	+12.[illegible]	+21 16 23.3	−5.67	21 11.6
17	6 56 13.85	12.[illegible]	21 13 50.7	7.[illegible]	21 12.5
18	7 1 3.97	12.[illegible]	21 10 45.1	8.[illegible]	21 13.4
19	7 5 54.56	12.115	21 7 6.3	9.[illegible]	21 14.3
20	7 10 45.57	12.131	21 2 54.1	11.[illegible]	21 15.2
21	7 15 36.93	+12.145	+20 58 8.5	−12.[illegible]	21 16.1
22	7 20 28.59	12.157	20 52 49.4	14.[illegible]	21 17.0
23	7 25 20.49	12.166	20 46 56.7	15.[illegible]	21 17.9
24	7 30 12.50	12.173	20 40 30.5	16.[illegible]	21 18.9
25	7 35 4.83	12.178	20 33 30.6	18.19	21 19.8
26	7 39 57.18	+12.181	+20 25 57.2	−19.50	21 20.7
27	7 44 49.59	12.[illegible]	20 17 51.3	20.[illegible]	21 21.6
28	7 49 42.00	12.180	20 9 10.1	22.[illegible]	21 22.6
29	7 54 34.37	12.[illegible]	19 59 56.5	23.76	21 23.6
30	7 59 26.66	12.[illegible]	19 50 9.8	25.14	21 24.5
31	8 4 18.82	+12.[illegible]	+19 39 50.1	−26.51	21 25.5
32	8 9 10.83	+12.141	+19 28 57.7	−27.[illegible]	21 26.4

Day of the Month	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter	12.4	11.7	11.1	10.6	10.1	9.6
Hor. Parallax	12.9	12.2	11.5	11.0	10.5	10.0

Day of the Month	4th.	9th.	14th.	19th.	24th.	29th.
	″	″	″	″	″	″
Semidiameter	9.2	8.9	8.6	8.3	8.0	7.7
Hor. Parallax	9.6	9.2	8.9	8.6	8.3	8.0

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	8 9 10.83	+12.161	+19 28 57.7	−27.87	21 26.4
2	8 14 2.63	12.152	19 17 32.6	29.23	21 27.3
3	8 18 54.19	12.142	19 5 35.1	30.57	21 28.2
4	8 23 45.48	12.130	18 53 5.5	31.90	21 29.1
5	8 28 36.48	12.117	18 40 4.1	33.22	21 30.0
6	8 33 27.16	+12.103	+18 26 31.0	−34.53	21 30.9
7	8 38 17.48	12.088	18 12 26.6	35.83	21 31.8
8	8 43 7.43	12.072	17 57 51.2	37.12	21 32.7
9	8 47 56.98	12.055	17 42 45.1	38.39	21 33.5
10	8 52 46.11	12.037	17 27 8.7	39.64	21 34.4
11	8 57 34.80	+12.018	+17 11 2.4	−40.88	21 35.3
12	9 2 23.04	11.999	16 54 26.4	42.11	21 36.2
13	9 7 10.81	11.979	16 37 21.3	43.32	21 37.0
14	9 11 58.09	11.959	16 19 47.3	44.51	21 37.9
15	9 16 44.87	11.938	16 1 45.0	45.68	21 38.7
16	9 21 31.13	+11.916	+15 43 14.8	−46.82	21 39.5
17	9 26 16.87	11.894	15 24 17.4	47.95	21 40.3
18	9 31 2.08	11.872	15 4 53.1	49.06	21 41.1
19	9 35 46.75	11.849	14 45 2.6	50.15	21 42.0
20	9 40 30.87	11.826	14 24 46.2	51.22	21 42.8
21	9 45 14.44	+11.804	+14 4 4.5	−52.26	21 43.6
22	9 49 57.44	11.781	13 42 58.0	53.28	21 44.4
23	9 54 39.88	11.757	13 21 27.5	54.27	21 45.1
24	9 59 21.75	11.734	12 59 33.5	55.24	21 45.8
25	10 4 3.07	11.710	12 37 16.5	56.18	21 46.5
26	10 8 43.83	+11.687	+12 14 37.1	−57.10	21 47.2
27	10 13 24.04	11.664	11 51 36.0	57.99	21 47.9
28	10 18 3.70	11.641	11 28 13.9	58.86	21 48.6
29	10 22 42.83	11.619	11 4 31.3	59.70	21 49.3
30	10 27 21.42	11.597	10 40 28.8	60.51	21 50.0
31	10 31 59.50	+11.576	+10 16 7.1	−61.30	21 50.7
32	10 36 37.07	+11.555	+ 9 51 26.8	−62.06	21 51.4

OCTOBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	10 31 59.50	+11.576	+10 16 7.1	−61.30	21 50.7
2	10 36 37.07	11.555	9 51 26.8	62.06	21 51.4
3	10 41 14.17	11.536	9 26 28.5	62.79	21 52.1
4	10 45 50.80	11.517	9 1 12.9	63.50	21 52.8
5	10 50 26.99	11.499	8 35 40.6	64.18	21 53.4
6	10 55 2.76	+11.482	+ 8 9 52.3	−64.84	21 54.1
7	10 59 38.12	11.466	7 43 48.5	65.47	21 54.7
8	11 4 13.10	11.451	7 17 30.0	66.07	21 55.4
9	11 8 47.73	11.437	6 50 57.4	66.64	21 56.0
10	11 13 22.04	11.425	6 24 11.4	67.19	21 56.6
11	11 17 56.06	+11.413	+ 5 57 12.5	−67.71	21 57.2
12	11 22 29.83	11.402	5 30 1.5	68.20	21 57.8
13	11 27 3.35	11.393	5 2 39.1	68.66	21 58.4
14	11 31 36.66	11.385	4 35 5.9	69.09	21 59.0
15	11 36 9.79	11.378	4 7 22.6	69.50	21 59.6
16	11 40 42.78	+11.372	+ 3 39 29.9	−69.88	22 0.2
17	11 45 15.66	11.368	3 11 28.5	70.23	22 0.8
18	11 49 48.45	11.366	2 43 19.1	70.54	22 1.4
19	11 54 21.19	11.365	2 15 2.6	70.82	22 2.1
20	11 58 53.90	11.365	1 46 39.5	71.08	22 2.7
21	12 3 26.62	+11.366	+ 1 18 10.7	−71.31	22 3.3
22	12 7 59.37	11.368	0 49 36.9	71.50	22 3.9
23	12 12 32.20	11.371	+ 0 20 58.7	71.67	22 4.5
24	12 17 5.13	11.376	− 0 7 43.0	71.81	22 5.1
25	12 21 38.21	11.383	0 36 27.6	71.91	22 5.7
26	12 26 11.45	+11.390	− 1 5 14.2	−71.98	22 6.3
27	12 30 44.89	11.399	1 34 2.2	72.02	22 6.9
28	12 35 18.57	11.409	2 2 50.8	72.03	22 7.5
29	12 39 52.51	11.421	2 31 39.1	72.00	22 8.1
30	12 44 26.76	11.435	3 0 26.6	71.94	22 8.7
31	12 49 1.34	+11.450	− 3 29 12.4	−71.86	22 9.4
32	12 53 36.31	+11.467	− 3 57 55.8	−71.76	22 10.0

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.	Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″		″	″	″	″	″	″
Semidiameter . . .	7.5	7.3	7.1	6.9	6.7	6.6	Semidiameter . . .	6.4	6.3	6.2	6.1	6.0	5.9
Hor. Parallax . . .	7.8	7.5	7.3	7.1	7.0	6.8	Hor. Parallax . . .	6.7	6.5	6.4	6.3	6.2	6.1

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER

Day of Month	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	12 53 56.31	+11.6[illegible]	− 3 57 55.8	−71.7[illegible]	22 10.0
2	12 58 11.69	11.6[illegible]	4 26 36.0	71.61	22 10.7
3	13 2 47.52	11.5[illegible]	4 55 12.4	71.41	22 11.4
4	13 7 23.83	11.[illegible]	5 23 44.1	71.20	22 12.1
5	13 12 0.67	11.56[illegible]	5 52 10.5	70.96	22 12.8
6	13 16 38.07	+11.570	− 6 20 30.8	−70.71	22 13.4
7	13 21 16.07	11.58[illegible]	6 48 44.2	70.41	22 14.1
8	13 25 54.70	11.60[illegible]	7 16 49.9	70.07	22 14.8
9	13 30 34.00	11.63[illegible]	7 44 47.2	69.70	22 15.5
10	13 35 14.01	11.66[illegible]	8 12 35.4	69.30	22 16.3
11	13 39 54.76	+11.[illegible]	− 8 40 13.6	−68.87	22 17.1
12	13 44 36.29	11.700	9 7 41.2	68.41	22 17.9
13	13 49 18.64	11.705	9 34 57.1	67.92	22 18.7
14	13 54 1.83	11.8[illegible]	10 2 0.8	67.39	22 19.4
15	13 58 45.90	11.8[illegible]	10 28 51.5	66.83	22 20.2
16	14 3 30.87	+11.8[illegible]	10 55 29.3	66.23	22 21.0
17	14 8 16.77	11.9[illegible]	11 21 50.4	65.60	22 21.8
18	14 13 3.64	11.970	11 47 57.0	64.94	22 22.7
19	14 17 51.51	12.006	12 13 47.2	64.25	22 23.6
20	14 22 40.38	12.0[illegible]	12 39 20.4	63.52	22 24.5
21	14 27 30.28	+12.103	−13 4 35.6	−62.75	22 25.4
22	14 32 21.24	12.14[illegible]	13 29 32.0	61.95	22 26.3
23	14 37 13.28	12.19[illegible]	13 54 8.9	61.12	22 27.2
24	14 42 6.41	12.2[illegible]	14 18 25.3	60.25	22 28.2
25	14 47 0.65	12.2[illegible]	14 42 21.5	59.35	22 29.2
26	14 51 56.00	+12.3[illegible]	−15 5 53.8	−58.42	22 30.2
27	14 56 52.49	12.3[illegible]	15 29 4.2	57.45	22 31.2
28	15 1 50.13	12.4[illegible]	15 51 51.0	56.45	22 32.2
29	15 6 48.94	12.4[illegible]	16 14 13.3	55.40	22 33.2
30	15 11 48.91	12.5[illegible]	16 36 12.4	54.32	22 34.3
31	15 16 50.05	+12.5[illegible]	16 57 41.6	53.2[illegible]	22 35.4
32	15 21 52.37	+12.6[illegible]	17 18 46.0	−52.11	22 36.6

Day of the Month	2d	7th	12th	17th	22d	27th
	″	″	″	″	″	″
Semidiameter . . .	5.8	5.7	5.6	5.6	5.5	5.4
Hor Parallax . . .	6.0	5.9	5.8	5.7	5.7	5.6

DECEMBER

Day of Month	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	15 16 50.05	+12.573	−16 57 41.6	−53.23	22 35.4
2	15 21 52.37	12.6[illegible]	17 18 46.0	52.10	22 36.6
3	15 26 55.87	12.6[illegible]	17 39 23.0	50.95	22 37.7
4	15 32 0.57	12.70[illegible]	17 59 31.6	49.76	22 38.9
5	15 37 6.47	12.770	18 19 11.2	48.53	22 40.1
6	15 42 13.54	+12.809	−18 38 21.0	−47.28	22 41.3
7	15 47 21.79	12.8[illegible]	18 57 0.2	45.99	22 42.5
8	15 52 31.23	12.9[illegible]	19 15 8.2	44.67	22 43.7
9	15 57 41.83	12.9[illegible]	19 32 44.2	43.30	22 44.9
10	16 2 53.59	13.0[illegible]	19 49 47.6	41.91	22 46.2
11	16 8 6.49	+13.0[illegible]	−20 6 17.5	−40.5[illegible]	22 47.5
12	16 13 20.53	13.1[illegible]	20 22 13.4	39.02	22 48.8
13	16 18 35.67	13.1[illegible]	20 37 34.5	37.49	22 50.1
14	16 23 51.90	13.1[illegible]	20 52 20.2	35.96	22 51.5
15	16 29 9.19	13.2[illegible]	21 6 29.9	34.41	22 52.8
16	16 34 27.52	+13.2[illegible]	−21 20 2.8	−32.80	22 54.2
17	16 39 46.84	13.303	21 32 58.5	31.20	22 55.6
18	16 45 7.13	13.3[illegible]	21 45 16.2	29.91	22 57.0
19	16 50 28.34	13.3[illegible]	21 56 55.4	28.30	22 58.4
20	16 55 50.44	13.41[illegible]	22 7 55.7	26.69	22 59.9
21	17 1 13.39	+13.473	−22 18 16.5	−24.9[illegible]	23 1.3
22	17 6 37.14	13.5[illegible]	22 27 57.4	23.[illegible]	23 2.8
23	17 12 1.64	13.5[illegible]	22 36 57.9	21.[illegible]	23 4.3
24	17 17 26.84	13.5[illegible]	22 45 17.4	19.[illegible]	23 5.8
25	17 22 52.69	13.5[illegible]	22 52 55.5	18.[illegible]	23 7.3
26	17 28 19.14	+13.6[illegible]	−22 59 51.9	−16.4[illegible]	23 8.8
27	17 33 46.11	13.6[illegible]	23 6 6.3	14.7[illegible]	23 10.3
28	17 39 13.55	13.6[illegible]	23 11 38.5	12.9[illegible]	23 11.8
29	17 44 41.41	13.6[illegible]	23 16 28.1	11.18	23 13.3
30	17 50 9.64	13.6[illegible]	23 20 34.9	9.39	23 14.9
31	17 55 38.18	+13.690	−23 23 58.6	− 7.59	23 16.4
32	18 1 6.96	+13.7[illegible]	−23 26 39.0	− 5.78	23 18.0

Day of the Month	2d	7th	12th	17th	22d	27th	32d
	″	″	″	″	″	″	″
Semidiameter .	5.4	5.3	5.3	5.2	5.2	5.2	5.1
Hor Parallax .	5.6	5.5	5.5	5.4	5.4	5.3	5.3

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	4 44 47.84	−2.212	+25 22 37.4	−3.04	9 57.2
2	4 43 56.52	2.063	25 21 25.1	2.98	9 52.4
3	4 43 8.81	1.912	25 20 14.4	2.90	9 47.7
4	4 42 24.74	1.760	25 19 5.8	2.81	9 43.1
5	4 41 44.31	1.607	25 17 59.5	2.71	9 38.5
6	4 41 7.55	−1.454	+25 16 55.9	−2.59	9 34.0
7	4 40 34.47	1.302	25 15 55.3	2.46	9 29.6
8	4 40 5.06	1.150	25 14 57.9	2.32	9 25.2
9	4 39 39.30	0.999	25 14 4.1	2.17	9 20.9
10	4 39 17.20	0.848	25 13 14.1	2.01	9 16.6
11	4 38 58.71	−0.697	+25 12 28.0	−1.84	9 12.3
12	4 38 43.81	0.547	25 11 45.9	1.66	9 8.2
13	4 38 32.47	0.399	25 11 8.1	1.48	9 4.1
14	4 38 24.65	0.253	25 10 34.7	1.30	9 0.0
15	4 38 20.29	−0.109	25 10 5.6	1.12	8 56.1
16	4 38 19.36	+0.032	+25 9 40.9	−0.94	8 52.1
17	4 38 21.80	0.171	25 9 20.6	0.75	8 48.3
18	4 38 27.56	0.308	25 9 4.9	0.56	8 44.5
19	4 38 36.58	0.443	25 8 53.7	0.37	8 40.7
20	4 38 48.82	0.576	25 8 46.9	0.19	8 37.0
21	4 39 4.22	+0.707	+25 8 44.4	−0.01	8 33.3
22	4 39 22.74	0.836	25 8 46.4	+0.17	8 29.7
23	4 39 44.33	0.963	25 8 52.6	0.34	8 26.1
24	4 40 8.93	1.088	25 9 3.1	0.51	8 22.6
25	4 40 36.49	1.210	25 9 17.7	0.68	8 19.2
26	4 41 6.97	+1.330	+25 9 36.4	+0.85	8 15.8
27	4 41 40.31	1.448	25 9 58.9	1.01	8 12.4
28	4 42 16.48	1.564	25 10 25.1	1.16	8 9.1
29	4 42 55.42	1.678	25 10 55.0	1.31	8 5.8
30	4 43 37.06	1.790	25 11 28.3	1.45	8 2.6
31	4 44 21.37	+1.901	+25 12 5.0	+1.59	7 59.4
32	4 45 8.31	+2.010	+25 12 44.9	+1.72	7 56.3

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter .	7.9	7.5	7.2	6.8	6.5	6.2	5.9
Hor. Parallax .	13.9	13.2	12.6	12.0	11.4	10.8	10.3

FEBRUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	4 45 8.31	+2.010	+25 12 44.9	+1.72	7 56.3
2	4 45 57.83	2.116	25 13 27.7	1.84	7 53.2
3	4 46 49.87	2.220	25 14 13.3	1.95	7 50.1
4	4 47 44.37	2.322	25 15 1.6	2.05	7 47.1
5	4 48 41.29	2.422	25 15 52.3	2.15	7 44.2
6	4 49 40.58	+2.519	+25 16 45.1	+2.24	7 41.2
7	4 50 42.18	2.614	25 17 39.9	2.32	7 38.3
8	4 51 46.04	2.707	25 18 36.5	2.39	7 35.5
9	4 52 52.10	2.798	25 19 34.7	2.45	7 32.6
10	4 54 0.31	2.886	25 20 34.3	2.50	7 29.8
11	4 55 10.62	+2.972	+25 21 35.0	+2.55	7 27.1
12	4 56 22.98	3.056	25 22 36.6	2.59	7 24.4
13	4 57 37.33	3.138	25 23 38.9	2.62	7 21.7
14	4 58 53.61	3.218	25 24 41.6	2.64	7 19.0
15	5 0 11.78	3.296	25 25 44.6	2.64	7 16.4
16	5 1 31.80	+3.372	+25 26 47.8	+2.63	7 13.8
17	5 2 53.63	3.446	25 27 50.8	2.62	7 11.2
18	5 4 17.21	3.519	25 28 53.4	2.60	7 8.7
19	5 5 42.50	3.590	25 29 55.6	2.57	7 6.2
20	5 7 9.48	3.659	25 30 57.0	2.53	7 3.7
21	5 8 38.10	+3.726	+25 31 57.4	+2.49	7 1.3
22	5 10 8.32	3.791	25 32 56.6	2.44	6 58.9
23	5 11 40.11	3.855	25 33 54.6	2.38	6 56.5
24	5 13 13.44	3.918	25 34 51.0	2.31	6 54.1
25	5 14 48.27	3.981	25 35 45.7	2.24	6 51.7
26	5 16 24.58	+4.043	+25 36 38.5	+2.16	6 49.4
27	5 18 2.34	4.104	25 37 29.2	2.07	6 47.1
28	5 19 41.52	4.163	25 38 17.6	1.97	6 44.8
29	5 21 22.08	4.220	25 39 3.5	1.86	6 42.5
30	5 23 4.00	4.275	25 39 46.7	1.75	6 40.3
31	5 24 47.23	+4.328	+25 40 27.1	+1.63	6 38.1
32	5 26 31.76	+4.380	+25 41 4.4	+1.50	6 35.9

Day of the Month.	5th.	10th.	15th.	20th.	25th.
	″	″	″	″	″
Semidiameter . .	5.6	5.3	5.0	4.8	4.6
Hor. Parallax . .	9.8	9.3	8.8	8.4	8.0

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME

MARCH.

Day of the Month	Apparent Right Ascension. Noon	Var. of R. A. for 1 Hour. Noon	Apparent Declination. Noon	Var. of Decl. for 1 Hour. Noon	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	5 21 22.08	+4.[illegible]	+25 39 3.5	+1.[illegible]	6 42.5
2	5 23 4.00	[illegible]	25 39 46.7	1.[illegible]	6 40.3
3	5 24 47.23	[illegible]	25 40 27.1	1.[illegible]	6 38.1
4	5 26 31.76	[illegible]	25 41 4.4	1.[illegible]	6 35.9
5	5 28 17.56	[illegible]	25 41 38.6	2.[illegible]	6 33.7
6	5 30 4.59	+4.[illegible]	+25 42 9.4	+2.[illegible]	6 31.6
7	5 31 52.82	4.[illegible]	25 42 36.6	[illegible]	6 29.5
8	5 33 42.22	[illegible]	25 43 0.1	[illegible]	6 27.3
9	5 35 32.76	[illegible]	25 43 19.7	0.73	6 25.2
10	5 37 24.40	[illegible]	25 43 35.3	0.[illegible]	6 23.2
11	5 39 17.11	+4.7[illegible]	+25 43 46.7	+0.[illegible]	6 21.1
12	5 41 10.86	4.7[illegible]	25 43 53.8	0.[illegible]	6 19.1
13	5 43 5.62	[illegible]	25 43 56.4	+0.0[illegible]	6 17.1
14	5 45 1.56	[illegible]	25 43 54.3	−0.[illegible]	6 15.1
15	5 46 58.06	[illegible]	25 43 47.5	0.[illegible]	6 13.1
16	5 48 55.68	+4.9[illegible]	+25 43 35.9	−0.[illegible]	6 11.1
17	5 50 54.21	[illegible]	25 43 18.9	[illegible]	6 9.1
18	5 52 53.61	[illegible]	25 42 57.9	1.[illegible]	6 7.2
19	5 54 53.86	5.[illegible]	25 42 29.7	1.[illegible]	6 5.3
20	5 56 54.94	5.[illegible]	25 41 57.0	1.[illegible]	6 3.3
21	5 58 56.83	+5.[illegible]	+25 41 18.7	−1.7[illegible]	6 1.4
22	6 0 59.51	5.1[illegible]	25 40 34.8	1.[illegible]	5 59.5
23	6 3 2.95	5.1[illegible]	25 39 45.2	[illegible]	5 57.6
24	6 5 7.13	5.[illegible]	25 38 52.9	[illegible]	5 55.8
25	6 7 12.05	5.[illegible]	25 37 48.4	[illegible]	5 53.9
26	6 9 17.63	+5.2[illegible]	+25 36 40.8	−[illegible]	5 52.1
27	6 11 24.[illegible]	5.2[illegible]	25 35 2[illegible]	3.[illegible]	5 50.3
28	6 13 31.[illegible]	5.2[illegible]	25 34 6.[illegible]	3.[illegible]	5 48.4
29	6 15 [illegible]	5.3[illegible]	25 32 40.4	3.7[illegible]	5 46.6
30	6 17 47.[illegible]	5.[illegible]	25 31 7.5	[illegible]	5 44.8
31	6 19 56.02	+5.[illegible]	+25 29 28.0	−[illegible]	5 43.[illegible]
32	6 22 5.60	+5.[illegible]	+25 27 41.7	−[illegible]	5 41.2

Day of the Month	2d	7th	12th	17th	22d	27th
	″	″	″	″	″	″
Semidiameter	4.4	4.2	4.1	3.9	3.8	3.6
Hor. Parallax	7.7	7.4	7.1	6.8	6.6	6.3

APRIL.

Day of the Month	Apparent Right Ascension. Noon	Var. of R. A. for 1 Hour. Noon	Apparent Declination. Noon	Var. of Decl. for 1 Hour. Noon	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	6 22 5.60	+5.4[illegible]	+25 27 41.7	−[illegible]	5 41.2
2	6 24 15.78	5.[illegible]	25 25 48.6	[illegible]	5 39.5
3	6 26 26.53	5.[illegible]	25 23 48.7	5.[illegible]	5 37.7
4	6 28 37.84	5.[illegible]	25 21 41.8	5.[illegible]	5 36.0
5	6 30 49.69	5.[illegible]	25 19 27.9	5.[illegible]	5 34.2
6	6 33 2.06	+5.5[illegible]	+25 17 6.9	−6.[illegible]	5 32.5
7	6 35 14.92	5.5[illegible]	25 14 38.2	6.[illegible]	5 30.8
8	6 37 28.26	5.5[illegible]	25 12 3.4	6.[illegible]	5 29.1
9	6 39 42.06	5.[illegible]	25 9 20.8	6.[illegible]	5 27.4
10	6 41 56.30	5.[illegible]	25 6 30.9	7.[illegible]	5 25.7
11	6 44 10.96	+5.[illegible]	+25 3 33.7	−7.[illegible]	5 24.0
12	6 46 26.03	5.[illegible]	25 0 29.0	7.[illegible]	5 22.3
13	6 48 41.49	5.[illegible]	24 57 16.9	8.[illegible]	5 20.6
14	6 50 57.31	5.[illegible]	24 53 57.2	8.[illegible]	5 18.9
15	6 53 13.48	5.[illegible]	24 50 30.0	8.[illegible]	5 17.2
16	6 55 29.99	+5.[illegible]	+24 46 55.2	−9.[illegible]	5 15.6
17	6 57 46.83	5.7[illegible]	24 43 12.8	9.[illegible]	5 13.9
18	7 0 3.98	5.7[illegible]	24 39 22.8	9.7[illegible]	5 12.3
19	7 2 21.43	5.713	24 35 25.1	10.[illegible]	5 10.6
20	7 4 39.18	5.7[illegible]	24 31 19.6	10.[illegible]	5 9.0
21	7 6 57.20	+5.7[illegible]	+24 27 6.4	−10.7[illegible]	5 7.3
22	7 9 15.49	5.7[illegible]	24 22 45.4	11.[illegible]	5 5.7
23	7 11 34.03	5.77[illegible]	24 18 16.6	11.[illegible]	5 4.0
24	7 13 52.83	5.7[illegible]	24 13 39.9	11.[illegible]	5 2.4
25	7 16 11.87	5.7[illegible]	24 8 55.3	[illegible]	5 0.8
26	7 18 31.14	+5.[illegible]	+24 4 2.8	−12.[illegible]	4 59.2
27	7 20 50.64	5.[illegible]	23 59 2.4	[illegible]	4 57.6
28	7 23 10.35	5.[illegible]	23 53 54.0	13.[illegible]	4 56.0
29	7 25 [illegible]	5.[illegible]	23 48 37.7	13.[illegible]	4 54.4
30	7 27 50.36	5.[illegible]	23 43 13.4	13.[illegible]	4 52.8
31	7 30 10.63	+5.[illegible]	+23 37 42.1	−14.[illegible]	4 51.2
32	7 32 32.08	+5.[illegible]	+23 32 0.8	−14.[illegible]	4 49.6

Day of the Month	1st	6th	11th	16th	21st	26th
	″	″	″	″	″	″
Semidiameter	3.5	3.4	3.3	3.2	3.1	3.0
Hor. Parallax	6.1	5.9	5.7	5.5	5.4	5.2

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	7 30 10.63	+5.848	+23 37 41.1	−14.01	4 51.2
2	7 32 31.08	5.855	23 32 0.8	14.35	4 49.6
3	7 34 51.68	5.861	23 26 12.4	14.69	4 48.0
4	7 37 12.43	5.867	23 20 16.1	15.02	4 46.4
5	7 39 33.32	5.872	23 14 11.8	15.35	4 44.8
6	7 41 54.33	+5.877	+23 7 59.6	−15.68	4 43.2
7	7 44 15.45	5.882	23 1 39.4	16.01	4 41.6
8	7 46 36.67	5.886	22 55 11.3	16.34	4 40.0
9	7 48 57.98	5.890	22 48 35.2	16.67	4 38.4
10	7 51 19.37	5.893	22 41 51.3	17.00	4 36.8
11	7 53 40.82	+5.895	+22 34 59.5	−17.33	4 35.3
12	7 56 2.33	5.897	22 27 59.9	17.65	4 33.7
13	7 58 23.89	5.899	22 20 52.4	17.98	4 32.1
14	8 0 45.49	5.901	22 13 37.1	18.30	4 30.5
15	8 3 7.12	5.902	22 6 14.1	18.62	4 28.9
16	8 5 28.78	+5.903	+21 58 43.4	−18.94	4 27.4
17	8 7 50.46	5.904	21 51 4.9	19.26	4 25.8
18	8 10 12.16	5.904	21 43 18.7	19.58	4 24.2
19	8 12 33.85	5.905	21 35 24.8	19.90	4 22.6
20	8 14 55.57	5.905	21 27 23.3	20.22	4 21.0
21	8 17 17.28	+5.905	+21 19 14.1	−20.54	4 19.5
22	8 19 38.99	5.905	21 10 57.3	20.86	4 17.9
23	8 22 0.70	5.904	21 2 32.8	21.18	4 16.3
24	8 24 22.40	5.904	20 54 0.8	21.50	4 14.7
25	8 26 44.10	5.903	20 45 21.2	21.81	4 13.1
26	8 29 5.78	+5.903	+20 36 34.1	−22.12	4 11.6
27	8 31 27.44	5.902	20 27 39.6	22.43	4 10.0
28	8 33 49.08	5.901	20 18 37.6	22.74	4 8.4
29	8 36 10.70	5.900	20 9 28.2	23.04	4 6.8
30	8 38 32.29	5.899	20 0 11.4	23.34	4 5.2
31	8 40 53.84	+5.898	+19 50 47.3	−23.64	4 3.6
32	8 43 15.36	+5.896	+19 41 15.9	−23.94	4 2.0

JUNE.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	8 43 15.36	+5.896	+19 41 15.9	−23.94	4 2.0
2	8 45 36.83	5.894	19 31 37.2	24.24	4 0.4
3	8 47 58.24	5.892	19 21 51.4	24.54	3 58.8
4	8 50 19.60	5.889	19 11 58.5	24.84	3 57.2
5	8 52 40.90	5.886	19 1 58.5	25.14	3 55.7
6	8 55 2.13	+5.883	+18 51 51.7	−25.43	3 54.1
7	8 57 23.30	5.880	18 41 37.8	25.72	3 52.5
8	8 59 44.40	5.877	18 31 17.1	26.00	3 50.9
9	9 2 5.42	5.874	18 20 49.6	26.28	3 49.3
10	9 4 26.35	5.871	18 10 15.3	26.56	3 47.8
11	9 6 47.20	+5.867	+17 59 34.4	−26.84	3 46.2
12	9 9 7.97	5.864	17 48 46.8	27.11	3 44.6
13	9 11 28.65	5.860	17 37 52.7	27.38	3 43.0
14	9 13 49.25	5.856	17 26 52.1	27.65	3 41.4
15	9 16 9.75	5.852	17 15 45.1	27.92	3 39.8
16	9 18 30.16	+5.849	+17 4 31.6	−28.19	3 38.2
17	9 20 50.50	5.845	16 53 11.8	28.45	3 36.6
18	9 23 10.75	5.842	16 41 45.6	28.71	3 35.0
19	9 25 30.91	5.838	16 30 13.2	28.97	3 33.4
20	9 27 50.99	5.835	16 18 34.5	29.23	3 31.8
21	9 30 10.99	+5.832	+16 6 49.8	−29.49	3 30.2
22	9 32 30.91	5.828	15 54 58.9	29.74	3 28.6
23	9 34 50.75	5.825	15 43 1.9	29.99	3 27.0
24	9 37 10.52	5.822	15 30 58.9	30.24	3 25.4
25	9 39 30.21	5.819	15 18 49.9	30.49	3 23.7
26	9 41 49.84	+5.816	+15 6 35.1	−30.74	3 22.1
27	9 44 9.39	5.813	14 54 14.5	30.98	3 20.5
28	9 46 28.87	5.810	14 41 48.1	31.22	3 18.9
29	9 48 48.27	5.807	14 29 16.0	31.45	3 17.3
30	9 51 7.60	5.804	14 16 38.3	31.68	3 15.6
31	9 53 26.86	+5.801	+14 3 55.1	−31.91	3 14.0
32	9 55 46.06	+5.798	+13 51 6.5	−32.13	3 12.4

Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
	″	″	″	″	″	″	″
Semidiameter .	2.9	2.8	2.8	2.7	2.7	2.6	2.6
Hor. Parallax .	5.1	5.0	4.9	4.8	4.7	4.6	4.5

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	2.5	2.5	2.4	2.4	2.3	2.3
Hor. Parallax . . .	4.4	4.3	4.3	4.2	4.1	4.0

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	9 53 26.86	+5.800	+14 3 55.1	−32.91	3 14.0
2	9 55 46.06	5.798	13 51 6.5	32.13	3 12.4
3	9 58 5.18	5.795	13 38 11.4	32.35	3 10.8
4	10 0 24.23	5.792	13 25 13.1	32.57	3 9.2
5	10 2 43.20	5.789	13 12 8.6	32.79	3 7.5
6	10 5 2.11	+5.786	+12 58 59.0	−33.01	3 5.8
7	10 7 20.95	5.783	12 45 44.1	33.22	3 4.2
8	10 9 39.72	5.780	12 32 24.6	33.43	3 2.6
9	10 11 58.41	5.777	12 19 0.1	33.64	3 1.0
10	10 14 17.04	5.774	12 5 30.7	33.85	2 59.4
11	10 16 35.60	+5.771	+11 51 56.6	−34.05	2 57.8
12	10 18 54.10	5.769	11 38 17.9	34.25	2 56.1
13	10 21 12.54	5.767	11 24 34.5	34.45	2 54.5
14	10 23 30.94	5.765	11 10 46.6	34.59	2 52.8
15	10 25 49.28	5.763	10 56 54.2	34.78	2 51.2
16	10 28 7.57	+5.761	+10 42 57.4	−34.96	2 49.6
17	10 30 25.82	5.760	10 28 56.2	35.14	2 47.9
18	10 32 44.04	5.759	10 14 50.8	35.30	2 46.3
19	10 35 2.22	5.758	10 0 41.1	35.50	2 44.6
20	10 37 20.37	5.757	9 46 27.2	35.67	2 43.0
21	10 39 38.53	+5.756	+9 32 9.2	−35.84	2 41.4
22	10 41 56.66	5.756	9 17 47.2	36.00	2 39.7
23	10 44 14.79	5.756	9 3 21.2	36.16	2 38.1
24	10 46 32.89	5.755	8 48 51.1	36.30	2 36.4
25	10 48 51.00	5.755	8 34 17.6	36.46	2 34.8
26	10 51 9.12	+5.755	+8 19 40.1	−36.64	2 33.2
27	10 53 27.24	5.756	8 4 59.0	36.79	2 31.5
28	10 55 45.38	5.756	7 50 14.3	36.94	2 29.9
29	10 58 3.52	5.757	7 35 26.1	37.08	2 28.3
30	11 0 21.68	5.758	7 20 34.5	37.22	2 26.7
31	11 2 39.88	+5.760	+7 5 39.6	−37.36	2 25.1
32	11 4 58.10	+5.760	+6 50 41.4	−37.47	2 23.4

Day of the Month.	6th.	10th.	14th.	20th.	26th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	2.3	2.2	2.2	2.2	2.2	2.2
Hor. Parallax . . .	4.0	3.9	3.9	3.8	3.8	3.7

AUGUST.

Day of Month	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	11 4 58.10	+5.760	+6 50 41.4	−37.47	2 23.4
2	11 7 16.34	5.761	6 35 40.1	37.60	2 21.8
3	11 9 34.61	5.762	6 20 35.8	37.73	2 20.1
4	11 11 52.91	5.764	6 5 28.6	37.86	2 18.5
5	11 14 11.25	5.765	5 50 18.5	37.98	2 16.9
6	11 16 29.64	+5.767	+5 35 5.6	−38.09	2 15.2
7	11 18 48.08	5.769	5 19 50.1	38.20	2 13.5
8	11 21 6.55	5.771	5 4 32.0	38.31	2 11.9
9	11 23 25.07	5.773	4 49 11.4	38.41	2 10.3
10	11 25 43.65	5.776	4 33 48.3	38.51	2 8.7
11	11 28 2.30	+5.779	+4 18 22.9	−38.60	2 7.1
12	11 30 21.03	5.782	4 2 55.2	38.69	2 5.4
13	11 32 39.84	5.785	3 47 25.2	38.78	2 3.8
14	11 34 58.73	5.789	3 31 53.2	38.86	2 2.2
15	11 37 17.72	5.792	3 16 19.1	38.95	2 0.6
16	11 39 36.80	+5.796	+3 0 43.0	−39.04	1 59.0
17	11 41 55.99	5.800	2 45 4.9	39.12	1 57.3
18	11 44 15.29	5.805	2 29 25.1	39.20	1 55.7
19	11 46 34.72	5.809	2 13 43.5	39.27	1 54.1
20	11 48 54.28	5.814	1 58 0.2	39.34	1 52.5
21	11 51 13.98	+5.819	+1 42 15.4	−39.40	1 50.9
22	11 53 33.81	5.824	1 26 29.0	39.46	1 49.2
23	11 55 53.80	5.830	1 10 41.2	39.52	1 47.6
24	11 58 13.94	5.835	0 54 52.1	39.57	1 46.0
25	12 0 34.25	5.840	0 39 1.8	39.62	1 44.4
26	12 2 54.72	+5.847	+0 23 10.4	−39.66	1 42.8
27	12 5 15.37	5.853	+0 7 17.9	39.70	1 41.2
28	12 7 36.18	5.861	−0 8 35.5	39.74	1 39.6
29	12 9 57.19	5.868	0 24 29.7	39.77	1 38.0
30	12 12 18.37	5.875	0 40 24.6	39.80	1 36.4
31	12 14 39.75	+5.882	−0 56 20.1	−39.82	1 34.8
32	12 17 1.33	+5.890	−1 12 16.2	−39.84	1 33.2

Day of the Month.	6th.	9th.	16th.	18th.	26th.	30th.
	″	″	″	″	″	″
Semidiameter . . .	2.1	2.1	2.1	2.1	2.1	2.1
Hor. Parallax . . .	3.7	3.7	3.6	3.6	3.6	3.6

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	12 17 1.33	+5.903	−1 12 16.2	−39.84	1 33.2
2	12 19 23.11	5.912	1 28 12.6	39.85	1 31.6
3	12 21 45.09	5.921	1 44 9.3	39.86	1 30.1
4	12 24 7.30	5.930	2 0 6.2	39.87	1 28.5
5	12 26 29.71	5.939	2 16 3.0	39.87	1 27.0
6	12 28 52.35	+5.948	−2 31 59.9	−39.86	1 25.4
7	12 31 15.22	5.958	2 47 56.8	39.86	1 23.9
8	12 33 38.33	5.968	3 3 53.5	39.85	1 22.3
9	12 36 1.68	5.978	3 19 49.8	39.84	1 20.8
10	12 38 25.29	5.989	3 35 45.6	39.83	1 19.2
11	12 40 49.15	+6.000	−3 51 40.9	−39.81	1 17.7
12	12 43 13.28	6.011	4 7 35.7	39.78	1 16.1
13	12 45 37.69	6.022	4 23 29.8	39.74	1 14.6
14	12 48 2.38	6.033	4 39 23.1	39.70	1 13.0
15	12 50 27.37	6.045	4 55 15.5	39.66	1 11.5
16	12 52 52.66	+6.058	−5 11 7.0	−39.62	1 10.0
17	12 55 18.25	6.071	5 26 57.4	39.58	1 8.5
18	12 57 44.16	6.084	5 42 46.5	39.54	1 7.0
19	13 0 10.40	6.098	5 58 34.3	39.49	1 5.5
20	13 2 36.98	6.112	6 14 20.8	39.43	1 4.0
21	13 5 3.90	+6.127	−6 30 5.8	−39.36	1 2.5
22	13 7 31.16	6.142	6 45 49.1	39.28	1 1.0
23	13 9 58.77	6.157	7 1 30.6	39.20	0 59.6
24	13 12 26.74	6.173	7 17 10.3	39.11	0 58.1
25	13 14 55.08	6.188	7 32 48.0	39.02	0 56.6
26	13 17 23.79	+6.204	−7 48 23.5	−38.93	0 55.1
27	13 19 52.87	6.220	8 3 56.8	38.83	0 53.6
28	13 22 22.34	6.236	8 19 27.6	38.73	0 52.2
29	13 24 52.19	6.252	8 34 55.9	38.63	0 50.7
30	13 27 22.44	6.268	8 50 21.6	38.52	0 49.3
31	13 29 53.08	+6.285	−9 5 44.5	−38.40	0 47.9
32	13 32 24.12	+6.302	−9 21 4.4	−38.27	0 46.5

OCTOBER.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	13 29 53.08	+6.285	− 9 5 44.5	−38.40	0 47.9
2	13 32 24.12	6.302	9 21 4.4	38.27	0 46.5
3	13 34 55.56	6.319	9 36 21.3	38.14	0 45.1
4	13 37 27.43	6.336	9 51 35.0	38.00	0 43.7
5	13 39 59.71	6.354	10 6 45.4	37.86	0 42.3
6	13 42 32.42	+6.372	−10 21 52.3	−37.72	0 40.9
7	13 45 5.56	6.390	10 36 55.8	37.57	0 39.5
8	13 47 39.14	6.408	10 51 55.6	37.41	0 38.1
9	13 50 13.16	6.427	11 6 51.5	37.25	0 36.7
10	13 52 47.64	6.446	11 21 43.5	37.08	0 35.3
11	13 55 22.58	+6.466	−11 36 31.5	−36.91	0 33.9
12	13 57 57.98	6.486	11 51 15.3	36.73	0 32.6
13	14 0 33.86	6.506	12 5 54.8	36.55	0 31.3
14	14 3 10.23	6.526	12 20 29.8	36.36	0 29.9
15	14 5 47.09	6.547	12 35 0.3	36.16	0 28.6
16	14 8 24.45	+6.568	−12 49 26.1	−35.96	0 27.3
17	14 11 2.31	6.589	13 3 47.0	35.76	0 26.0
18	14 13 40.68	6.610	13 18 3.0	35.55	0 24.7
19	14 16 19.57	6.631	13 32 13.8	35.34	0 23.4
20	14 18 58.99	6.653	13 46 19.4	35.12	0 22.1
21	14 21 38.93	+6.675	−14 0 19.5	−34.89	0 20.8
22	14 24 19.40	6.697	14 14 14.1	34.65	0 19.5
23	14 27 0.41	6.720	14 28 3.0	34.41	0 18.3
24	14 29 41.97	6.743	14 41 45.9	34.16	0 17.0
25	14 32 24.07	6.765	14 55 22.8	33.90	0 15.8
26	14 35 6.72	+6.788	−15 8 53.5	−33.64	0 14.6
27	14 37 49.91	6.811	15 22 17.9	33.37	0 13.4
28	14 40 33.65	6.834	15 35 35.7	33.10	0 12.2
29	14 43 17.95	6.857	15 48 46.9	32.82	0 11.0
30	14 46 2.81	6.880	16 1 51.2	32.53	0 9.8
31	14 48 48.23	+6.903	−16 14 48.6	−32.24	0 8.6
32	14 51 34.21	+6.926	−16 27 38.8	−31.94	0 7.4

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
	″	″	″	″	″	″
September						
Semidiameter . . .	2.0	2.0	2.0	2.0	2.0	2.0
Hor. Parallax . . .	3.6	3.6	3.6	3.5	3.5	3.5
October						
Semidiameter . . .	2.0	2.0	2.0	2.0	2.0	2.0
Hor. Parallax . . .	3.5	3.5	3.5	3.5	3.5	3.5

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

NOVEMBER

Day of Month	Apparent Right Ascension	Var of R A for 1 Hour	Apparent Declination	Var of Decl for 1 Hour	Meridian Passage
	Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m
1	14 51 34.21	+6.9[illegible]	16 27 35.8	−[illegible]	0 7.4
2	14 54 20.75	[illegible]	16 40 21.7	31.63	0 6.3
3	14 57 7.85	[illegible]	16 52 57.1	[illegible]	0 5.2
4	14 59 55.52	[illegible]	17 5 24.9	[illegible]	0 4.0
5	15 2 43.77	[illegible]	17 17 45.0	[illegible]	0 2.9
6	15 5 32.60	+7.0[illegible]	−17 29 57.1	−[illegible]	0 1.7
7	15 8 22.00	[illegible]	17 42 1.2	[illegible]	[illegible]
8	15 11 11.98	[illegible]	17 53 57.0	[illegible]	23 58.4
9	15 14 2.54	7.119	18 5 44.5	[illegible]	23 57.3
10	15 16 53.69	7.143	18 17 23.5	[illegible]	23 56.2
11	15 19 45.44	+7.1[illegible]	18 28 53.8	−[illegible]	23 55.1
12	15 22 37.78	[illegible]	18 40 15.2	[illegible]	23 54.1
13	15 25 30.71	[illegible]	18 51 27.7	[illegible]	23 53.0
14	15 28 24.24	7.241	19 2 31.0	[illegible]	23 52.0
15	15 31 18.39	[illegible]	19 13 25.0	[illegible]	23 51.0
16	15 34 13.11	+7.2[illegible]	−19 24 9.5	[illegible]	23 49.9
17	15 37 8.45	7.318	19 34 44.4	[illegible]	23 48.9
18	15 40 4.39	7.341	19 45 9.5	[illegible]	23 47.9
19	15 43 0.91	[illegible]	19 55 24.6	[illegible]	23 46.9
20	15 45 58.06	[illegible]	20 5 29.6	[illegible]	23 45.9
21	15 48 55.73	+7.418	20 15 24.3	−[illegible]	23 45.0
22	15 51 54.12	7.441	20 25 8.6	[illegible]	23 44.1
23	15 54 53.03	[illegible]	20 34 42.2	[illegible]	23 43.1
24	15 57 52.53	[illegible]	20 44 5.1	[illegible]	23 42.2
25	16 0 52.[illegible]	[illegible]	20 53 17.[illegible]	[illegible]	23 41.2
26	16 3 53.25	+7.5[illegible]	−21 2 17.8	−[illegible]	23 40.3
27	16 6 54.47	[illegible]	21 11 7.3	[illegible]	23 39.4
28	16 9 56.25	[illegible]	21 19 45.4	[illegible]	23 38.5
29	16 12 58.[illegible]	[illegible]	21 28 11.9	[illegible]	23 37.6
30	16 16 1.47	[illegible]	21 36 26.7	[illegible]	23 36.7
31	16 19 4.90	+7.6[illegible]	−21 44 29.7	−[illegible]	23 35.8
32	16 22 8.87	+7.6[illegible]	21 52 20.6	−[illegible]	23 35.0

DECEMBER

Day of Month	Apparent Right Ascension	Var of R A for 1 Hour	Apparent Declination	Var of Decl for 1 Hour	Meridian Passage
	Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m
1	16 19 4.90	+7.6[illegible]	−21 44 29.7	−[illegible]	23 35.8
2	16 22 8.87	7.677	21 52 20.6	[illegible]	23 35.0
3	16 25 13.38	[illegible]	21 59 59.3	[illegible]	23 34.1
4	16 28 18.42	[illegible]	22 7 25.8	[illegible]	23 33.3
5	16 31 23.98	[illegible]	22 14 39.8	[illegible]	23 32.4
6	16 34 30.06	+7.7[illegible]	−22 21 42.2	−[illegible]	23 31.6
7	16 37 36.65	[illegible]	22 28 29.9	[illegible]	23 30.7
8	16 40 43.75	[illegible]	22 35 5.7	[illegible]	23 29.9
9	16 43 51.36	[illegible]	22 41 28.5	[illegible]	23 29.1
10	16 46 59.46	[illegible]	22 47 38.2	[illegible]	23 28.3
11	16 50 8.05	+7.8[illegible]	−22 53 34.7	[illegible]	23 27.5
12	16 53 17.12	[illegible]	22 59 17.8	14.01	23 26.7
13	16 56 26.67	[illegible]	23 4 47.3	[illegible]	23 26.0
14	16 59 36.69	[illegible]	23 10 3.2	[illegible]	23 25.2
15	17 2 47.16	[illegible]	23 15 5.3	[illegible]	23 24.5
16	17 5 58.08	+7.9[illegible]	−23 19 53.5	−[illegible]	23 23.7
17	17 9 9.43	[illegible]	23 24 27.7	[illegible]	23 23.0
18	17 12 21.20	[illegible]	23 28 47.8	[illegible]	23 22.2
19	17 15 33.39	8.016	23 32 53.6	[illegible]	23 21.5
20	17 18 46.00	[illegible]	23 36 45.1	[illegible]	23 20.7
21	17 21 59.01	+8.0[illegible]	−23 40 22.1	−8.7[illegible]	23 20.0
22	17 25 12.38	[illegible]	23 43 44.5	8.1[illegible]	23 19.3
23	17 28 26.11	[illegible]	23 46 52.3	7.53	23 18.6
24	17 31 40.19	[illegible]	23 49 45.4	6.91	23 17.9
25	17 34 54.60	[illegible]	23 52 23.6	[illegible]	23 17.2
26	17 38 9.33	+8.1[illegible]	−23 54 46.9	−5.66	23 16.5
27	17 41 24.37	[illegible]	23 56 55.2	[illegible]	23 15.8
28	17 44 39.70	[illegible]	23 58 48.4	[illegible]	23 15.1
29	17 47 55.30	8.155	24 0 26.5	3.77	23 14.4
30	17 51 11.16	8.166	24 1 49.3	[illegible]	23 13.8
31	17 54 27.27	+8.1[illegible]	−24 2 57.9	−[illegible]	23 13.1
32	17 57 43.61	+8.1[illegible]	−24 3 49.2	−1.88	23 12.4

Day of the Month	2d	7th	12th	17th	22d	27th
	″	″	″	″	″	″
Semi-diameter	2.0	2.0	2.0	2.0	2.0	2.0
Hor Parallax	3.3	3.3	3.3	3.3	3.3	3.3

Day of the Month	2d	7th	12th	17th	22d	27th	32d
	″	″	″	″	″	″	″
Semi-diameter	2.0	2.0	2.0	2.1	2.1	2.1	2.1
Hor Parallax	3.6	3.6	3.6	3.6	3.6	3.6	3.7

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing. The sign − indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	10 48 25.39	−0.197	+8 50 17.1	+1.93	16 0.2
2	10 48 20.30	0.227	8 51 5.6	2.11	15 56.1
3	10 48 14.49	0.257	8 51 58.4	2.29	15 52.1
4	10 48 7.95	0.287	8 52 55.5	2.47	15 48.1
5	10 48 0.69	0.318	8 53 57.0	2.65	15 44.0
6	10 47 52.70	−0.348	+8 55 2.8	+2.83	15 39.9
7	10 47 44.00	0.378	8 56 12.8	3.01	15 35.8
8	10 47 34.59	0.407	8 57 27.0	3.18	15 31.7
9	10 47 24.48	0.436	8 58 45.3	3.35	15 27.6
10	10 47 13.66	0.465	9 0 7.8	3.52	15 23.5
11	10 47 2.16	−0.494	+9 1 34.3	+3.69	15 19.4
12	10 46 49.97	0.523	9 3 4.7	3.85	15 15.2
13	10 46 37.09	0.551	9 4 39.1	4.01	15 11.1
14	10 46 23.54	0.579	9 6 17.4	4.17	15 6.9
15	10 46 9.33	0.606	9 7 59.5	4.33	15 2.7
16	10 45 54.46	−0.633	+9 9 45.4	+4.49	14 58.6
17	10 45 38.94	0.660	9 11 35.1	4.64	14 54.4
18	10 45 22.77	0.687	9 13 28.4	4.79	14 50.1
19	10 45 5.97	0.713	9 15 25.2	4.94	14 45.9
20	10 44 48.55	0.739	9 17 25.5	5.09	14 41.7
21	10 44 30.52	−0.764	+9 19 29.4	+5.24	14 37.5
22	10 44 11.87	0.789	9 21 36.8	5.38	14 33.2
23	10 43 52.63	0.814	9 23 47.3	5.51	14 29.0
24	10 43 32.81	0.838	9 26 1.0	5.64	14 24.7
25	10 43 12.41	0.861	9 28 17.8	5.77	14 20.4
26	10 42 51.44	−0.884	+9 30 37.8	+5.89	14 16.2
27	10 42 29.93	0.907	9 33 0.7	6.01	14 11.9
28	10 42 7.89	0.929	9 35 26.4	6.13	14 7.6
29	10 41 45.33	0.951	9 37 55.0	6.24	14 3.3
30	10 41 22.25	0.972	9 40 26.3	6.35	13 58.9
31	10 40 58.68	−0.992	+9 43 0.0	+6.45	13 54.6
32	10 40 34.64	−1.011	+9 45 36.2	+6.55	13 50.3

FEBRUARY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	10 40 34.64	−1.011	+ 9 45 36.2	+6.55	13 50.3
2	10 40 10.14	1.030	9 48 14.9	6.65	13 46.0
3	10 39 45.19	1.048	9 50 55.8	6.74	13 41.6
4	10 39 19.82	1.065	9 53 38.6	6.82	13 37.3
5	10 38 54.05	1.082	9 56 23.3	6.90	13 32.9
6	10 38 27.90	−1.097	+ 9 59 10.0	+6.97	13 28.5
7	10 38 1.37	1.112	10 1 58.3	7.04	13 24.1
8	10 37 34.50	1.126	10 4 48.2	7.11	13 19.8
9	10 37 7.30	1.139	10 7 39.6	7.17	13 15.4
10	10 36 39.79	1.152	10 10 32.4	7.22	13 11.0
11	10 36 11.99	−1.164	+10 13 26.4	+7.27	13 6.6
12	10 35 43.92	1.175	10 16 21.3	7.31	13 2.3
13	10 35 15.60	1.185	10 19 17.2	7.35	12 57.8
14	10 34 47.05	1.194	10 22 14.0	7.38	12 53.4
15	10 34 18.29	1.202	10 25 11.5	7.40	12 49.0
16	10 33 49.34	−1.209	+10 28 9.4	+7.42	12 44.5
17	10 33 20.22	1.216	10 31 7.8	7.44	12 40.1
18	10 32 50.95	1.222	10 34 6.7	7.45	12 35.7
19	10 32 21.55	1.227	10 37 5.7	7.45	12 31.3
20	10 31 52.04	1.231	10 40 4.7	7.44	12 26.9
21	10 31 22.44	−1.234	+10 43 3.7	+7.44	12 22.4
22	10 30 52.78	1.237	10 46 2.6	7.44	12 18.0
23	10 30 23.06	1.239	10 49 1.2	7.43	12 13.6
24	10 29 53.32	1.239	10 51 59.2	7.41	12 9.1
25	10 29 23.58	1.238	10 54 56.7	7.39	12 4.7
26	10 28 53.87	−1.237	+10 57 53.7	+7.36	12 0.3
27	10 28 24.20	1.235	11 0 49.8	7.32	11 55.9
28	10 27 54.58	1.232	11 3 44.8	7.28	11 51.5
29	10 27 25.04	1.229	11 6 38.7	7.23	11 47.0
30	10 26 55.61	1.224	11 9 31.6	7.17	11 42.6
31	10 26 26.32	−1.218	+11 12 23.1	+7.11	11 38.2
32	10 25 57.18	−1.211	+11 15 13.0	+7.05	11 33.8

Day of the Month.	1st.	9th.	17th.	25th.
	″	″	″	″
Semidiameter	19.6	20.0	20.4	20.7
Horizontal Parallax	1.8	1.9	1.9	2.0

Day of the Month.	2d.	10th.	18th.	26th.
	″	″	″	″
Semidiameter	21.0	21.2	21.3	21.3
Horizontal Parallax	2.0	2.0	2.0	2.0

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME

MARCH. Day of the Month	Apparent Right Ascension. Mean.	Var. of R. A. for 1 Hour. Mean.	Apparent Declination. Mean.	Var. of Decl. for 1 Hour. Mean.	Meridian Passage	APRIL. Day of the Month	Apparent Right Ascension. Mean.	Var. of R. A. for 1 Hour. Mean.	Apparent Declination. Mean.	Var. of Decl. for 1 Hour. Mean.	Meridian Passage
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	10 27 25.09	−1.029	+11 6 35.7	+7.19	11 47.0	1	10 14 40.61	−0.718	+12 17 51.9	+3.70	9 32.6
2	10 26 55.61	1.024	11 9 31.6	7.17	11 42.6	2	10 14 23.70	0.692	12 19 19.3	3.58	9 28.4
3	10 26 26.32	1.018	11 12 25.1	7.11	11 38.2	3	10 14 7.42	0.669	12 20 42.9	3.46	9 24.2
4	10 25 57.18	1.011	11 15 15.0	7.05	11 33.8	4	10 13 51.79	0.648	12 22 2.6	3.34	9 20.0
5	10 25 28.21	1.005	11 18 1.3	6.98	11 29.4	5	10 13 36.82	0.621	12 23 18.5	3.22	9 15.8
6	10 24 59.44	−1.098	+11 20 48.1	+6.92	11 25.0	6	10 13 22.50	0.595	+12 24 30.5	+3.09	9 11.7
7	10 24 30.89	1.089	11 23 33.0	6.85	11 20.6	7	10 13 8.85	0.558	12 25 38.6	2.96	9 7.5
8	10 24 2.58	1.075	11 26 15.9	6.79	11 16.2	8	10 12 55.82	0.528	12 26 42.7	2.80	9 3.4
9	10 23 34.52	1.069	11 28 56.7	6.66	11 11.8	9	10 12 43.48	0.500	12 27 42.8	2.61	8 59.2
10	10 23 6.74	1.052	11 31 35.5	6.57	11 7.4	10	10 12 31.82	0.471	12 28 38.9	2.26	8 55.1
11	10 22 39.28	−1.138	+11 34 11.9	+6.47	11 3.0	11	10 12 20.84	−0.443	+12 29 31.1	+2.09	8 51.0
12	10 22 12.13	1.129	11 36 45.9	6.37	10 58.6	12	10 12 10.56	0.414	12 30 19.8	1.90	8 46.9
13	10 21 45.30	1.111	11 39 17.5	6.27	10 54.3	13	10 12 0.97	0.385	12 31 3.3	1.76	8 42.8
14	10 21 18.82	1.097	11 41 46.7	6.16	10 49.9	14	10 11 52.07	0.356	12 31 43.5	1.50	8 38.7
15	10 20 52.72	1.080	11 44 13.2	6.05	10 45.5	15	10 11 43.86	0.327	12 32 19.7	1.40	8 34.7
16	10 20 27.01	−1.061	+11 46 36.9	+5.93	10 41.2	16	10 11 36.35	0.298	+12 32 51.8	+1.25	8 30.6
17	10 20 1.71	1.041	11 48 57.8	5.81	10 36.8	17	10 11 29.54	0.269	12 33 19.9	1.09	8 26.6
18	10 19 36.81	1.027	11 51 16.0	5.69	10 32.5	18	10 11 23.44	0.240	12 33 44.1	0.92	8 22.6
19	10 19 12.[illegible]	1.00[illegible]	11 53 31.2	5.[illegible]	10 28.2	19	10 11 18.04	0.211	12 34 4.3	0.75	8 18.5
20	10 18 48.[illegible]	0.9[illegible]	11 55 43.3	5.44	10 23.8	20	10 11 13.34	0.181	12 34 20.4	0.58	8 14.5
21	10 18 24.85	[illegible]	[illegible]	+5.3[illegible]	10 19.5	21	10 11 9.35	0.153	+12 34 32.5	+0.40	8 10.5
22	10 18 1.79	[illegible]	11 59 55.4	5.[illegible]	10 15.2	22	10 11 6.06	0.123	12 34 40.7	0.25	8 6.6
23	10 17 39.23	0.90[illegible]	12 [illegible]	[illegible]	10 [illegible]	23	10 11 3.48	0.094	12 34 44.9	+0.09	8 2.6
24	10 17 17.18	0.8[illegible]	12 4 [illegible]	4.91	10 [illegible]	24	10 11 1.60	0.064	12 34 45.1	−0.07	7 58.6
25	10 16 55.65	0.8[illegible]	12 5 [illegible] 9	4.[illegible]	10 [illegible]	25	10 11 0.43	0.035	12 34 41.3	0.24	7 54.7
26	10 16 34.64	[illegible]	+12 7 [illegible] 7	+4.[illegible]	[illegible]	26	10 10 [illegible]	[illegible]	+12 34 [illegible]	−0.41	7 50.7
27	10 16 14.1[illegible]	[illegible]	12 9 [illegible]	4.[illegible]	[illegible]	27	10 11 [illegible]	[illegible]	12 34 [illegible]	0.57	7 46.8
28	10 15 5[illegible]	[illegible]	12 11 [illegible]	4.[illegible]	[illegible]	28	10 11 1.[illegible]	[illegible]	12 34 [illegible]	0.74	7 42.9
29	10 15 [illegible]	[illegible]	12 13 7.[illegible]	4.[illegible]	[illegible]	29	10 11 2.84	[illegible]	12 33 4[illegible]	0.91	7 39.0
30	10 15 1[illegible]	[illegible]	12 14 4[illegible].7	4.[illegible]	9 41.[illegible]	30	10 11 5.21	0.114	12 33 [illegible].7	1.07	7 35.1
31	10 14 5[illegible]	[illegible]	+12 16 [illegible].7	+4.[illegible]	9 3[illegible]	31	10 11 8.28	+0.141	+12 32 55.1	−1.24	7 31.2
32	10 14 40.61	[illegible]	+12 17 51	+3.[illegible]	9 3[illegible]	32	10 11 12.06	+0.170	+12 32 23.5	−1.40	7 27.4

Day of the Month	6th.	16th.	26th.	36th.	Day of the Month	7th.	18th.	28th.
	″	″	″	″		″	″	″
Semidiameter	21.[illegible]	21.1	20.8	20.[illegible]	Semidiameter	20.1	19.7	19.2
Horizontal Parallax	2.[illegible]	2.[illegible]	2.0	1.9	Horizontal Parallax	1.9	1.9	1.8

The sign + prefixed to the [illegible] change of the [illegible] north declinations are increasing and south [illegible] are decreasing. [illegible] north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	10 11 8.28	+0.143	+12 32 55.1	−1.24	7 31.2
2	10 11 12.06	0.172	12 32 23.5	1.40	7 27.4
3	10 11 16.53	0.201	12 31 48.0	1.56	7 23.5
4	10 11 21.69	0.230	12 31 8.7	1.72	7 19.7
5	10 11 27.55	0.259	12 30 25.5	1.88	7 15.8
6	10 11 34.10	+0.287	+12 29 38.5	−2.04	7 12.0
7	10 11 41.33	0.316	12 28 47.7	2.20	7 8.2
8	10 11 49.24	0.344	12 27 53.1	2.36	7 4.4
9	10 11 57.84	0.372	12 26 54.6	2.52	7 0.6
10	10 12 7.10	0.400	12 25 52.4	2.67	6 56.9
11	10 12 17.02	+0.428	+12 24 46.6	−2.82	6 53.1
12	10 12 27.60	0.455	12 23 37.1	2.97	6 49.3
13	10 12 38.85	0.482	12 22 23.9	3.12	6 45.6
14	10 12 50.74	0.509	12 21 7.1	3.27	6 41.9
15	10 13 3.27	0.536	12 19 46.7	3.42	6 38.1
16	10 13 16.43	+0.562	+12 18 22.8	−3.57	6 34.4
17	10 13 30.23	0.588	12 16 55.4	3.72	6 30.7
18	10 13 44.66	0.614	12 15 24.5	3.86	6 27.1
19	10 13 59.70	0.640	12 13 50.1	4.01	6 23.4
20	10 14 15.35	0.665	12 12 12.2	4.15	6 19.7
21	10 14 31.62	+0.690	+12 10 30.9	−4.29	6 16.0
22	10 14 48.50	0.715	12 8 46.2	4.43	6 12.4
23	10 15 5.97	0.740	12 6 58.1	4.57	6 8.7
24	10 15 24.03	0.764	12 5 6.6	4.71	6 5.1
25	10 15 42.68	0.789	12 3 11.8	4.85	6 1.5
26	10 16 1.93	+0.813	+12 1 13.7	−4.99	5 57.9
27	10 16 21.75	0.837	11 59 12.3	5.13	5 54.3
28	10 16 42.14	0.861	11 57 7.6	5.27	5 50.7
29	10 17 3.10	0.885	11 54 59.6	5.40	5 47.1
30	10 17 24.62	0.908	11 52 48.4	5.53	5 43.5
31	10 17 46.69	+0.931	+11 50 34.1	−5.67	5 40.0
32	10 18 9.31	+0.954	+11 48 16.6	−5.80	5 36.4

Day of the Month.	1st.	9th.	17th.	25th.
	″	″	″	″
Semidiameter	18.8	18.4	17.9	17.5
Horizontal Parallax . .	1.8	1.7	1.7	1.6

JUNE.

Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m
1	10 18 9.31	+0.954	+11 48 16.6	−5.80	5 36.4
2	10 18 32.47	0.976	11 45 55.9	5.93	5 32.9
3	10 18 56.17	0.998	11 43 32.1	6.06	5 29.3
4	10 19 20.39	1.020	11 41 5.3	6.18	5 25.8
5	10 19 45.14	1.042	11 38 35.5	6.30	5 22.3
6	10 20 10.41	+1.063	+11 36 2.7	−6.43	5 18.8
7	10 20 36.18	1.084	11 33 26.9	6.55	5 15.3
8	10 21 2.44	1.104	11 30 48.2	6.67	5 11.8
9	10 21 29.19	1.125	11 28 6.7	6.79	5 8.3
10	10 21 56.44	1.145	11 25 22.3	6.91	5 4.8
11	10 22 24.16	+1.165	+11 22 35.1	−7.03	5 1.3
12	10 22 52.35	1.184	11 19 45.1	7.15	4 57.9
13	10 23 21.00	1.203	11 16 52.3	7.26	4 54.4
14	10 23 50.11	1.222	11 13 56.8	7.37	4 51.0
15	10 24 19.67	1.241	11 10 58.5	7.48	4 47.5
16	10 24 49.67	+1.259	+11 7 57.6	−7.59	4 44.1
17	10 25 20.11	1.277	11 4 54.1	7.70	4 40.7
18	10 25 50.99	1.295	11 1 48.1	7.81	4 37.3
19	10 26 22.30	1.313	10 58 39.3	7.92	4 33.9
20	10 26 54.02	1.330	10 55 28.0	8.03	4 30.5
21	10 27 26.15	+1.347	+10 52 14.1	−8.14	4 27.1
22	10 27 58.69	1.364	10 48 57.7	8.24	4 23.7
23	10 28 31.64	1.381	10 45 38.7	8.34	4 20.3
24	10 29 4.98	1.398	10 42 17.3	8.45	4 16.9
25	10 29 38.72	1.414	10 38 53.5	8.55	4 13.5
26	10 30 12.85	+1.430	+10 35 27.2	−8.65	4 10.1
27	10 30 47.36	1.446	10 31 58.5	8.75	4 6.7
28	10 31 22.24	1.461	10 28 27.5	8.85	4 3.4
29	10 31 57.49	1.476	10 24 54.2	8.94	4 0.0
30	10 32 33.11	1.491	10 21 18.5	9.04	3 56.7
31	10 33 9.08	+1.506	+10 17 40.5	−9.13	3 53.3
32	10 33 45.39	+1.520	+10 14 0.3	−9.22	3 50.0

Day of the Month.	2d.	10th.	18th.	26th.
	″	″	″	″
Semidiameter	17.1	16.7	16.4	16.1
Horizontal Parallax . .	1.6	1.6	1.5	1.5

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY.

Day of Month	Apparent Right Ascension (Noon)	Var. of R.A. for 1 Hour (Noon)	Apparent Declination (Noon)	Var. of Decl. for 1 Hour (Noon)	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	10 33 [illegible]	+1.9[illegible]	+10 17 40.5	−9.19	3 53.3
2	10 33 45.[illegible]	1.9[illegible]	10 14 [illegible]	9.[illegible]	3 50.0
3	10 34 22.04	[illegible]	10 10 17.9	9.11	3 46.7
4	10 34 [illegible]	[illegible]	10 6 33.4	[illegible]	3 43.4
5	10 35 [illegible]	[illegible]	10 2 46.7	[illegible]	3 40.1
6	10 36 14.0[illegible]	+1.9[illegible]	+9 58 57.9	−9.[illegible]	3 36.8
7	10 36 [illegible]	[illegible]	9 55 7.0	[illegible]	3 33.5
8	10 37 [illegible]	[illegible]	9 51 14.1	[illegible]	3 30.2
9	10 38 [illegible]	[illegible]	9 47 19.2	[illegible]	3 26.9
10	10 38 47.7[illegible]	[illegible]	9 43 22.3	[illegible]	3 23.6
11	10 39 [illegible]	+1.[illegible]	+9 39 23.4	−9.[illegible]	3 20.3
12	10 40 6.35	[illegible]	9 35 22.6	[illegible]	3 17.1
13	10 40 4[illegible]	[illegible]	9 31 19.8	[illegible]	3 13.8
14	10 41 [illegible]	[illegible]	9 27 1[illegible]	[illegible]	3 10.6
15	10 42 [illegible]	[illegible]	9 23 [illegible]	[illegible]	3 7.3
16	10 42 4[illegible]	+1.[illegible]	+9 19 [illegible]	−[illegible]	3 4.1
17	10 43 [illegible] 74	[illegible]	9 14 [illegible]	[illegible]	3 0.9
18	10 44 [illegible]	[illegible]	9 10 [illegible]	[illegible]	2 57.5
19	10 44 [illegible]	[illegible]	9 6 2[illegible]	[illegible]	2 54.2
20	10 45 3[illegible]	[illegible]	9 2 [illegible]	[illegible]	2 51.0
21	10 46 13.50	[illegible]	[illegible]	[illegible]	2 47.7
22	10 46 [illegible]	[illegible]	8 5[illegible]	[illegible]	2 44.5
23	10 4[illegible]	[illegible]	8 4[illegible]	[illegible]	2 41.1
24	10 4[illegible]	[illegible]	8 44 [illegible]	[illegible]	2 3[illegible]
25	10 49 [illegible]	[illegible]	8 40 [illegible]	[illegible]	2 34.[illegible]
26	10 49 4[illegible]	[illegible]	+8 36 [illegible]	[illegible]	2 [illegible]
27	10 50 [illegible]	[illegible]	8 31 [illegible]	[illegible]	2 [illegible]
28	10 51 12.5[illegible]	[illegible]	8 27 [illegible]	[illegible]	2 [illegible]
29	10 51 [illegible]	[illegible]	8 22 [illegible]	[illegible]	2 [illegible]
30	10 52 [illegible]	[illegible]	8 18 8.0	[illegible]	2 1[illegible]
31	10 53 [illegible]	+1.[illegible]	+8 13 35.5	[illegible]	2 1[illegible].6
32	10 54 8.05	+1.8[illegible]	+8 9 1.6	[illegible]	2 1[illegible].4

Day of the Month	6th	13th	20th	28th
	″	″	″	″
Semi-diameter	15.8	15.5	15.3	15.1
Horizontal Parallax	1.5	1.5	1.4	1.4

AUGUST.

Day of Month	Apparent Right Ascension (Noon)	Var. of R.A. for 1 Hour (Noon)	Apparent Declination (Noon)	Var. of Decl. for 1 Hour (Noon)	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	10 54 8.05	+1.8[illegible]	+8 9 1.6	−11.44	2 12.4
2	10 54 5[illegible]	1.8[illegible]	8 4 26.4	11.50	2 9.2
3	10 55 [illegible]	1.8[illegible]	7 59 49.9	11.55	2 6.0
4	10 56 21.5[illegible]	1.8[illegible]	7 55 11.1	11.60	2 2.8
5	10 57 6.43	1.870	7 50 33.1	11.65	1 59.7
6	10 57 51.44	+1.870	+7 45 52.9	−11.70	1 56.5
7	10 58 36.[illegible]	1.885	7 41 11.5	11.75	1 53.3
8	10 59 21.[illegible]	1.89[illegible]	7 36 28.9	11.80	1 50.1
9	11 0 7.5[illegible]	1.8[illegible]	7 31 45.1	11.85	1 46.9
10	11 0 52.[illegible]	1.9[illegible]	7 27 0.2	11.89	1 43.7
11	11 1 38.69	+1.9[illegible]	+7 22 14.3	−11.94	1 40.5
12	11 2 24.56	1.9[illegible]	7 17 27.4	11.98	1 37.4
13	11 3 10.56	1.919	7 12 39.5	12.0[illegible]	1 34.2
14	11 3 5[illegible]	1.9[illegible]	7 7 50.5	12.06	1 31.1
15	11 4 42.[illegible]	1.9[illegible]	7 3 0.6	12.10	1 27.9
16	11 5 [illegible]	+1.934	+6 58 9.7	−12.14	1 24.8
17	11 6 15.[illegible]	1.94[illegible]	6 53 17.9	12.18	1 21.6
18	11 7 [illegible]	1.9[illegible]	6 48 25.1	12.[illegible]	1 18.5
19	11 7 4[illegible]	1.9[illegible]	6 43 31.5	12.[illegible]	1 15.3
20	11 8 [illegible]	1.9[illegible]	6 38 37.1	12.[illegible]	1 12.2
21	11 9 22.74	+1.9[illegible]	+6 33 41.[illegible]	−12.[illegible]	1 9.0
22	11 10 [illegible]	1.9[illegible]	6 28 45.8	12.[illegible]	1 5.9
23	11 [illegible]	1.9[illegible]	6 23 4[illegible].0	12.[illegible]	1 2.7
24	11 [illegible]	1.9[illegible]	6 18 5[illegible]	12.41	0 59.6
25	11 12 [illegible]	1.9[illegible]	6 13 53.3	12.44	0 56.4
26	11 13 [illegible]	+1.9[illegible]	+6 8 54.4	−12.4[illegible]	0 53.3
27	11 14 [illegible]	1.9[illegible]	6 3 54.9	12.50	0 50.1
28	11 14 [illegible]	1.9[illegible]	5 58 54.8	12.5[illegible]	0 47.0
29	11 [illegible]	1.9[illegible]	5 53 54.1	12.5[illegible]	0 43.8
30	11 [illegible] 48	1.9[illegible]	5 48 52.9	12.5[illegible]	0 40.6
31	11 17 [illegible]	+1.9[illegible]	+5 43 51.3	−12.[illegible]	0 37.5
32	11 1[illegible] 3 [illegible]	+1.9[illegible]	+5 38 49.[illegible]	−12.6[illegible]	0 34.4

Day of the Month	5th	13th	21st	29th
	″	″	″	″
Semi-diameter	15.0	14.8	14.7	14.6
Horizontal Parallax	1.4	1.4	1.4	1.4

The sign + prefixed to the hourly change of declination indicates that north declinations are increasing and south declinations are decreasing; the sign − indicates that north declinations are decreasing and south declinations are increasing.

GREENWICH MEAN TIME.

Day of Month.	SEPTEMBER. Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.	Day of Month.	OCTOBER. Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	11 18 3.78	+1.98[illegible]	+5 38 [illegible]	−12.60	0 34.4	1	11 41 55.50	+1.964	+3 6 50.8	−12.53	22 57.0
2	11 18 51.50	[illegible]	5 33 [illegible]	12.62	0 31.2	2	11 42 42.57	1.960	3 1 49.9	12.51	22 53.9
3	11 19 39.26	[illegible]	5 28 [illegible]	12.63	0 28.1	3	11 43 29.56	1.956	2 56 50.1	12.48	22 50.7
4	11 20 27.05	[illegible]	5 23 [illegible]	12.65	0 25.0	4	11 44 16.46	1.952	2 51 50.8	12.45	22 47.6
5	11 21 14.87	[illegible]	5 18 [illegible]	12.66	0 21.9	5	11 45 3.25	1.948	2 46 52.3	12.42	22 44.4
6	11 22 2.71	[illegible]	+5 13 33.8	−12.67	0 18.7	6	11 45 49.93	+1.943	+2 41 54.5	−12.39	22 41.2
7	11 22 50.5[illegible]	[illegible]	5 8 [illegible]	12.68	0 15.6	7	11 46 36.51	1.939	2 36 57.5	12.36	22 38.0
8	11 23 38.44	[illegible]	5 3 24.8	12.68	0 12.4	8	11 47 22.98	1.934	2 32 1.2	12.33	22 34.9
9	11 24 [illegible]	[illegible]	4 58 20.3	12.69	0 9.3	9	11 48 9.33	1.929	2 27 5.7	12.29	22 31.7
10	11 25 14 [illegible]	[illegible]	4 53 15.5	12.70	0 6.1	10	11 48 55.55	1.924	2 22 11.1	12.26	22 28.6
11	[illegible]	[illegible]	+4 48 10.6	−12.70	[illegible]	11	11 49 41.65	+1.919	+2 17 17.4	−12.22	22 25.4
[illegible]	[illegible]	[illegible]	4 43 5.6	12.71	23 56.7	12	11 50 27.63	1.913	2 12 24.5	12.18	22 22.3
[illegible]	[illegible]	[illegible]	4 38 0.6	12.71	23 53.6	13	11 51 13.47	1.907	2 7 32.5	12.14	22 19.1
[illegible]	[illegible]	[illegible]	4 32 55.5	12.72	23 50.5	14	11 51 59.17	1.901	2 2 41.5	12.10	22 15.9
[illegible]	[illegible]	[illegible]	4 27 50.3	12.72	23 47.3	15	11 52 44.73	1.895	1 57 51.6	12.06	22 12.7
[illegible]	[illegible]	[illegible]	+4 22 45.1	−12.72	23 44.2	16	11 53 30.14	+1.889	+1 53 2.7	−12.02	22 9.6
[illegible]	[illegible]	[illegible]	4 17 40.0	12.71	23 41.0	17	11 54 15.40	1.883	1 48 14.8	11.97	22 6.4
[illegible]	[illegible]	[illegible]	4 12 34.9	12.71	23 37.9	18	11 55 0.50	1.876	1 43 28.1	11.92	22 3.2
[illegible]	[illegible]	[illegible]	4 7 29.8	12.70	23 34.7	19	11 55 45.44	1.869	1 38 42.5	11.87	22 0.0
[illegible]	[illegible]	[illegible]	4 2 24.9	12.70	23 31.6	20	11 56 30.23	1.862	1 33 58.1	11.82	21 56.8
[illegible]	[illegible]	[illegible]	+3 57 20.2	−12.69	23 28.4	21	11 57 14.83	+1.855	+1 29 15.0	−11.77	21 53.6
[illegible]	[illegible]	[illegible]	3 52 15.8	12.68	23 25.3	22	11 57 59.25	1.847	1 24 33.2	11.72	21 50.4
[illegible]	[illegible]	[illegible]	3 47 11.5	12.67	23 22.2	23	11 58 43.48	1.839	1 19 52.7	11.66	21 47.2
[illegible]	[illegible]	[illegible]	3 42 7.5	12.66	23 19.1	24	11 59 27.52	1.831	1 15 13.5	11.60	21 44.0
[illegible]	[illegible]	[illegible]	3 37 3.8	12.65	23 15.9	25	12 0 11.37	1.823	1 10 35.8	11.54	21 40.8
[illegible]	[illegible]	[illegible]	+3 32 0.5	−12.61	23 12.8	26	12 0 55.02	+1.815	+1 5 59.6	−11.48	21 37.5
[illegible]	[illegible]	[illegible]	3 26 57.5	[illegible]	23 9.6	27	12 1 38.46	1.806	1 1 24.9	11.42	21 34.3
[illegible]	[illegible]	[illegible]	3 21 55.0	[illegible]	23 6.5	28	12 2 21.69	1.797	0 56 51.6	11.36	21 31.0
[illegible]	[illegible]	[illegible]	3 16 54.0	[illegible]	23 3.3	29	12 3 4.70	1.788	0 52 19.9	11.29	21 27.8
[illegible]	[illegible]	[illegible]	3 11 51.3	[illegible]	23 0.2	30	12 3 47.48	1.778	0 47 49.8	11.22	21 24.6
[illegible]	[illegible]	[illegible]	+3 6 50.3	[illegible]	22 57.0	31	12 4 30.03	+1.768	+0 43 21.4	−11.15	21 21.4
[illegible]	[illegible]	[illegible]	+3 1 49.9	[illegible]	22 53.9	32	12 5 12.35	+1.758	+0 38 54.7	−11.08	21 18.2

Day of the Month.	[illegible]	[illegible]	[illegible]	[illegible]
	″	″	″	″
Semidiameter	14.8	14.8	14.8	14.7
Horizontal Parallax	1.4	1.4	1.4	1.4

Day of the Month.	8th.	16th.	24th.
	″	″	″
Semidiameter	14.8	14.9	15.1
Horizontal Parallax	1.4	1.4	1.4

Note. The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME

NOVEMBER.

Day of the Month	Apparent Right Ascension	Var. of R. A. for 1 Hour	Apparent Declination	Var. of Dec. for 1 Hour	Meridian Passage
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	+0 17 8.1	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Day of the Month	1st	9th	17th	25th
Semidiameter	[illegible]	[illegible]	[illegible]	[illegible]
Horizontal Parallax	[illegible]	[illegible]	[illegible]	[illegible]

DECEMBER.

Day of the Month	Apparent Right Ascension	Var. of R. A. for 1 Hour	Apparent Declination	Var. of Dec. for 1 Hour	Meridian Passage
	Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m
1	12 24 4.33	[illegible]	−1 18 5.3	−8.14	19 38.9
2	[illegible]	[illegible]	1 21 19.6	[illegible]	19 35.5
3	12 25 8.11	1.311	1 24 30.9	7.91	19 32.1
4	[illegible]	1.293	[illegible]	7.79	19 28.6
5	[illegible]	1.276	[illegible]	7.65	19 25.2
6	12 26 40.49	[illegible]	1 33 46.5	−7.51	19 21.8
7	12 27 10.17	[illegible]	1 36 45.6	[illegible]	19 18.3
8	[illegible]	1.224	1 39 41.4	[illegible]	19 14.9
9	12 28 8.75	[illegible]	1 42 34.0	7.11	19 11.4
10	12 28 37.22	[illegible]	1 45 23.3	[illegible]	19 8.0
11	12 29 5.22	[illegible]	−1 48 9.4	−6.85	19 4.5
12	[illegible]	[illegible]	1 50 52.1	6.71	19 1.0
13	[illegible]	1.115	1 53 31.4	[illegible]	18 57.5
14	[illegible]	[illegible]	1 56 7.3	6.41	18 54.0
15	[illegible]	[illegible]	[illegible]	[illegible]	18 50.5
16	[illegible]	[illegible]	−2 1 8.7	−6.11	18 47.0
17	[illegible]	[illegible]	2 3 34.1	[illegible]	18 43.4
18	12 32 7.12	[illegible]	[illegible]	[illegible]	18 39.9
19	[illegible]	[illegible]	[illegible]	[illegible]	18 36.4
20	12 32 54.35	[illegible]	2 10 28.4	[illegible]	18 32.8
21	12 33 17.13	[illegible]	−2 12 39.0	[illegible]	18 29.3
22	12 33 39.15	[illegible]	2 14 45.9	[illegible]	18 25.7
23	[illegible]	[illegible]	[illegible]	[illegible]	18 22.1
24	[illegible]	[illegible]	2 18 48.1	[illegible]	18 18.5
25	[illegible]	[illegible]	2 20 43.4	4.73	18 14.9
26	[illegible]	[illegible]	−2 22 34.8	[illegible]	18 11.3
27	[illegible]	[illegible]	2 24 22.4	[illegible]	18 7.7
28	[illegible]	[illegible]	[illegible]	4.21	18 4.1
29	[illegible]	[illegible]	2 27 45.4	[illegible]	18 0.4
30	[illegible]	0.717	[illegible]	[illegible]	17 56.8
31	[illegible]	[illegible]	−2 30 52.4	[illegible]	17 53.1
32	[illegible]	[illegible]	−2 32 19.8	[illegible]	17 49.4

Day of the Month	3d	11th	19th	27th	35th
Semidiameter	[illegible]	[illegible]	17.0	17.4	[illegible]
Horizontal Parallax	1.5	1.6	1.6	1.6	1.7

The signs [illegible] right ascensions are increasing and south declinations are decreasing [illegible] decreasing [illegible] declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.	Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	15 41 38.27	+0.990	−17 35 34.6	−3.04	20 53.0	1	15 51 44.91	+0.612	−18 3 51.9	−1.50	19 1.0
2	15 42 1.92	0.981	17 36 47.0	3.00	20 49.4	2	15 51 59.43	0.597	18 4 27.0	1.44	18 57.3
3	15 42 25.34	0.971	17 37 58.3	2.95	20 45.9	3	15 52 13.59	0.582	18 5 0.8	1.39	18 53.6
4	15 42 48.52	0.961	17 39 8.4	2.90	20 42.3	4	15 52 27.38	0.567	18 5 33.3	1.33	18 49.9
5	15 43 11.47	0.951	17 40 17.4	2.86	20 38.8	5	15 52 40.80	0.552	18 6 4.5	1.28	18 46.2
6	15 43 34.17	+0.941	−17 41 25.3	−2.81	20 35.2	6	15 52 53.85	+0.536	−18 6 34.5	−1.22	18 42.5
7	15 43 56.62	0.931	17 42 32.1	2.76	20 31.7	7	15 53 6.53	0.520	18 7 3.2	1.17	18 38.8
8	15 44 18.82	0.920	17 43 37.7	2.71	20 28.1	8	15 53 18.83	0.504	18 7 30.6	1.12	18 35.0
9	15 44 40.77	0.909	17 44 42.1	2.66	20 24.6	9	15 53 30.75	0.488	18 7 56.7	1.06	18 31.3
10	15 45 2.45	0.898	17 45 45.3	2.61	20 21.0	10	15 53 42.28	0.472	18 8 21.6	1.01	18 27.5
11	15 45 23.86	+0.887	−17 46 47.4	−2.56	20 17.4	11	15 53 53.43	+0.456	−18 8 45.2	−0.95	18 23.8
12	15 45 45.01	0.876	17 47 48.3	2.51	20 13.8	12	15 54 4.19	0.440	18 9 7.5	0.90	18 20.0
13	15 46 5.89	0.864	17 48 47.9	2.46	20 10.2	13	15 54 14.56	0.424	18 9 28.5	0.85	18 16.3
14	15 46 26.49	0.852	17 49 46.5	2.41	20 6.6	14	15 54 24.55	0.408	18 9 48.2	0.80	18 12.5
15	15 46 46.80	0.840	17 50 43.9	2.36	20 3.0	15	15 54 34.15	0.392	18 10 6.7	0.74	18 8.7
16	15 47 6.82	+0.828	−17 51 40.0	−2.31	19 59.4	16	15 54 43.35	+0.375	−18 10 23.9	−0.69	18 4.9
17	15 47 26.56	0.816	17 52 34.9	2.26	19 55.8	17	15 54 52.15	0.358	18 10 39.8	0.64	18 1.1
18	15 47 46.00	0.804	17 53 28.7	2.22	19 52.2	18	15 55 0.54	0.342	18 10 54.4	0.59	17 57.3
19	15 48 5.14	0.792	17 54 21.3	2.17	19 48.6	19	15 55 8.54	0.325	18 11 7.8	0.53	17 53.5
20	15 48 23.98	0.779	17 55 12.6	2.12	19 44.9	20	15 55 16.13	0.308	18 11 19.9	0.48	17 49.7
21	15 48 42.52	+0.766	−17 56 2.7	−2.07	19 41.3	21	15 55 23.31	+0.291	−18 11 30.7	−0.42	17 45.9
22	15 49 0.74	0.753	17 56 51.5	2.02	19 37.7	22	15 55 30.09	0.274	18 11 40.3	0.37	17 42.1
23	15 49 18.64	0.740	17 57 39.2	1.96	19 34.1	23	15 55 36.45	0.257	18 11 48.6	0.32	17 38.2
24	15 49 36.23	0.726	17 58 25.7	1.91	19 30.4	24	15 55 42.40	0.240	18 11 55.6	0.26	17 34.4
25	15 49 53.50	0.712	17 59 10.8	1.86	19 26.8	25	15 55 47.93	0.222	18 12 1.3	0.21	17 30.6
26	15 50 10.44	+0.698	−17 59 54.7	−1.81	19 23.1	26	15 55 53.06	+0.205	−18 12 5.8	−0.16	17 26.7
27	15 50 27.04	0.684	18 0 37.4	1.76	19 19.4	27	15 55 57.76	0.187	18 12 8.9	0.11	17 22.8
28	15 50 43.30	0.670	18 1 18.8	1.70	19 15.7	28	15 56 2.04	0.170	18 12 10.8	−0.06	17 19.0
29	15 50 59.23	0.656	18 1 59.0	1.65	19 12.1	29	15 56 5.90	0.152	18 12 11.5	0.00	17 15.1
30	15 51 14.82	0.642	18 2 37.9	1.60	19 8.4	30	15 56 9.35	0.135	18 12 11.0	+0.05	17 11.2
31	15 51 30.05	+0.627	−18 3 15.5	−1.55	19 4.7	31	15 56 12.37	+0.117	−18 12 9.2	+0.10	17 7.4
32	15 51 44.91	+0.612	−18 3 51.9	−1.50	19 1.0	32	15 56 14.97	+0.099	−18 12 6.1	+0.15	17 3.5

Day of the Month.	1st.	9th.	17th.	25th.	Day of the Month.	2d.	10th	18th.	26th
	″	″	″	″		″	″	″	″
Semidiameter	7.4	7.4	7.5	7.6	Semidiameter	7.7	7.8	7.9	8.0
Horizontal Parallax . .	0.8	0.8	0.9	0.9	Horizontal Parallax . .	0.9	0.9	0.9	0.9

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME

MARCH

Day of the Month	Apparent Right Ascension. Noon	Var. of R. A. for 1 Hour. Noon	Apparent Declination. Noon	Var. of Decl. for 1 Hour. Noon	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APRIL

Day of the Month	Apparent Right Ascension. Noon	Var. of R. A. for 1 Hour. Noon	Apparent Declination. Noon	Var. of Decl. for 1 Hour. Noon	Meridian Passage
	h m s	s	° ′ ″	″	h m
1	15 54 40.13	[illegible]	18 2 45.1	+1.4[illegible]	15 11.7
2	15 54 31.05	[illegible]	18 2 9.4	[illegible]	15 7.6
3	15 54 21.61	[illegible]	18 1 32.7	[illegible]	15 3.5
4	15 54 11.81	[illegible]	18 0 55.0	[illegible]	14 59.4
5	15 54 1.67	[illegible]	18 0 16.5	1.61	14 55.3
6	15 53 51.18	[illegible]	17 59 37.1	[illegible]	14 51.2
7	15 53 40.35	[illegible]	17 58 56.8	[illegible]	14 47.0
8	15 53 29.10	[illegible]	17 58 15.5	[illegible]	14 42.9
9	15 53 17.71	[illegible]	17 57 33.4	[illegible]	14 38.8
10	15 53 5.91	[illegible]	17 56 50.5	1.81	14 34.7
11	15 52 53.79	[illegible]	17 56 6.9	[illegible]	14 30.6
12	15 52 41.36	[illegible]	17 55 22.4	[illegible]	14 26.4
13	15 52 28.64	[illegible]	17 54 37.1	[illegible]	14 22.3
14	15 52 15.63	[illegible]	17 53 51.1	1.91	14 18.1
15	15 52 2.32	[illegible]	17 53 4.3	[illegible]	14 14.0
16	15 51 48.71	[illegible]	17 52 16.8	[illegible]	14 9.8
17	15 51 34.[illegible]	[illegible]	17 51 28.6	[illegible]	14 5.6
18	15 51 20.76	[illegible]	17 50 39.7	[illegible]	14 1.5
19	15 51 6.37	[illegible]	17 49 50.1	[illegible]	13 57.3
20	15 50 51.72	[illegible]	17 48 59.9	2.11	13 53.1
21	15 50 36.83	[illegible]	17 48 9.1	+2.14	13 48.9
22	15 50 21.71	[illegible]	17 47 17.7	2.16	13 44.8
23	15 50 6.35	[illegible]	17 46 25.7	2.19	13 40.6
24	15 49 50.[illegible]	[illegible]	17 45 33.1	[illegible]	13 36.4
25	15 49 34.96	[illegible]	17 44 40.0	[illegible]	13 32.2
26	15 49 18.95	[illegible]	17 43 46.4	[illegible]	13 28.0
27	15 49 2.74	[illegible]	17 42 52.4	[illegible]	13 23.8
28	15 48 46.33	[illegible]	17 41 57.9	[illegible]	13 19.6
29	15 48 29.75	[illegible]	17 41 3.0	[illegible]	13 15.4
30	15 48 12.99	[illegible]	17 40 7.7	[illegible]	13 11.2
31	15 47 56.05	[illegible]	17 39 12.0	[illegible]	13 7.0
32	15 47 38.96	[illegible]	17 38 16.0	[illegible]	13 2.7

Day of the Month	6th	16th	26th	36th
Semi-diameter	[illegible]	[illegible]	[illegible]	[illegible]
Horizontal Parallax	[illegible]	[illegible]	[illegible]	[illegible]

Day of the Month	5th	15th	25th	35th
Semi-diameter	[illegible]	[illegible]	[illegible]	[illegible]
Horizontal Parallax	[illegible]	[illegible]	[illegible]	[illegible]

The sign + [illegible] are decreasing. The sign [illegible] are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.					
Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.	Day of Month.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Hour. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Hour. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	15 47 56.05	−0.709	−17 39 12.0	+2.34	13 7.0	1	15 38 39.71	−0.726	−17 10 3.6	+2.18	10 55.8
2	15 47 38.96	0.715	17 38 16.0	2.35	13 2.7	2	15 38 22.36	0.720	17 9 11.7	2.15	10 51.6
3	15 47 21.73	0.721	17 37 19.7	2.36	12 58.5	3	15 38 5.15	0.714	17 8 20.5	2.12	10 47.4
4	15 47 4.36	0.726	17 36 23.1	2.37	12 54.3	4	15 37 48.09	0.707	17 7 29.9	2.09	10 43.2
5	15 46 46.85	0.731	17 35 26.2	2.37	12 50.1	5	15 37 31.19	0.700	17 6 40.0	2.06	10 39.0
6	15 46 29.22	−0.736	−17 34 29.1	+2.38	12 45.8	6	15 37 14.45	−0.693	−17 5 50.8	+2.03	10 34.8
7	15 46 11.49	0.740	17 33 31.8	2.38	12 41.6	7	15 36 57.88	0.686	17 5 2.3	2.00	10 30.6
8	15 45 53.67	0.744	17 32 34.4	2.39	12 37.4	8	15 36 41.50	0.678	17 4 14.6	1.97	10 26.4
9	15 45 35.75	0.747	17 31 36.9	2.39	12 33.2	9	15 36 25.31	0.670	17 3 27.7	1.94	10 22.2
10	15 45 17.74	0.750	17 30 39.2	2.40	12 28.9	10	15 36 9.31	0.662	17 2 41.7	1.91	10 18.0
11	15 44 59.67	−0.753	−17 29 41.5	+2.40	12 24.7	11	15 35 53.52	−0.654	−17 1 56.5	+1.87	10 13.8
12	15 44 41.54	0.756	17 28 43.7	2.41	12 20.5	12	15 35 37.94	0.645	17 1 12.1	1.83	10 9.6
13	15 44 23.36	0.758	17 27 45.9	2.41	12 16.2	13	15 35 22.57	0.636	17 0 28.6	1.80	10 5.4
14	15 44 5.13	0.760	17 26 48.1	2.41	12 12.0	14	15 35 7.42	0.626	16 59 46.0	1.76	10 1.2
15	15 43 46.87	0.761	17 25 50.4	2.40	12 7.8	15	15 34 52.51	0.616	16 59 4.3	1.72	9 57.0
16	15 43 28.58	−0.762	−17 24 52.7	+2.40	12 3.5	16	15 34 37.84	−0.606	−16 58 23.6	+1.68	9 52.8
17	15 43 10.26	0.763	17 23 55.1	2.39	11 59.3	17	15 34 23.41	0.596	16 57 43.9	1.64	9 48.7
18	15 42 51.94	0.763	17 22 57.6	2.39	11 55.1	18	15 34 9.22	0.585	16 57 5.3	1.60	9 44.5
19	15 42 33.63	0.763	17 22 0.3	2.38	11 50.8	19	15 33 55.29	0.574	16 56 27.6	1.55	9 40.3
20	15 42 15.33	0.762	17 21 3.2	2.37	11 46.6	20	15 33 41.63	0.563	16 55 51.0	1.51	9 36.2
21	15 41 57.03	−0.761	−17 20 6.3	+2.36	11 42.3	21	15 33 28.24	−0.552	−16 55 15.5	+1.46	9 32.0
22	15 41 38.76	0.760	17 19 9.6	2.35	11 38.1	22	15 33 15.12	0.541	16 54 41.0	1.41	9 27.9
23	15 41 20.54	0.758	17 18 13.2	2.34	11 33.9	23	15 33 2.28	0.529	16 54 7.6	1.37	9 23.7
24	15 41 2.37	0.756	17 17 17.1	2.33	11 29.6	24	15 32 49.73	0.517	16 53 35.4	1.32	9 19.6
25	15 40 44.24	0.753	17 16 21.4	2.32	11 25.4	25	15 32 37.48	0.505	16 53 4.4	1.27	9 15.5
26	15 40 26.18	−0.750	−17 15 26.1	+2.30	11 21.2	26	15 32 25.52	−0.492	−16 52 34.6	+1.22	9 11.3
27	15 40 8.20	0.747	17 14 31.2	2.28	11 16.9	27	15 32 13.87	0.479	16 52 6.0	1.17	9 7.2
28	15 39 50.30	0.744	17 13 36.7	2.26	11 12.7	28	15 32 2.54	0.466	16 51 38.6	1.12	9 3.1
29	15 39 32.48	0.740	17 12 42.6	2.24	11 8.5	29	15 31 51.52	0.453	16 51 12.4	1.07	8 59.0
30	15 39 14.77	0.736	17 11 49.1	2.22	11 4.3	30	15 31 40.81	0.439	16 50 47.5	1.02	8 54.9
31	15 38 57.18	−0.731	−17 10 56.1	+2.20	11 0.0	31	15 31 30.44	−0.425	−16 50 23.9	+0.96	8 50.8
32	15 38 39.71	−0.726	−17 10 3.6	+2.18	10 55.8	32	15 31 20.41	−0.411	−16 50 1.6	+0.90	8 46.7

Day of the Month.	1st.	9th.	17th.	25th.	Day of the Month.	2d.	10th	18th.	26th.
	″	″	″	″		″	″	″	″
Semidiameter	8.7	8.7	8.7	8.7	Semidiameter	8.7	8.6	8.6	8.5
Horizontal Parallax . .	1.0	1.0	1.0	1.0	Horizontal Parallax . .	1.0	1.0	1.0	1.0

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

JULY

Day of Month	Apparent Right Ascension	Var. of R.A. for 1 Hour	Apparent Declination	Var. of Decl. for 1 Hour	Meridian Passage
	Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	15 31 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	15 31 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	15 31 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	15 30 [illegible]	[illegible]	[illegible]	[illegible]	8 34.4
6	15 30 [illegible]	[illegible]	16 48 [illegible]	[illegible]	8 3[illegible]
7	15 30 [illegible]	[illegible]	16 48 [illegible]	[illegible]	8 26.3
8	15 [illegible]	[illegible]	[illegible]	[illegible]	8 22.2
9	15 30 [illegible]	[illegible]	[illegible]	[illegible]	8 18.2
10	15 [illegible]	[illegible]	16 47 [illegible]	[illegible]	8 14.1
11	15 30 [illegible]	[illegible]	[illegible]	[illegible]	8 10.1
12	[illegible]	[illegible]	[illegible]	[illegible]	8 [illegible]
13	[illegible]	[illegible]	16 47 [illegible]	[illegible]	8 [illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	7 5[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	7 54[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	7 42.0
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	7 14.1
26	[illegible]	[illegible]	[illegible]	[illegible]	7 10.2
27	[illegible]	[illegible]	[illegible]	[illegible]	7 6.2
28	[illegible]	[illegible]	[illegible]	[illegible]	7 2.1
29	[illegible]	[illegible]	[illegible]	[illegible]	6 58.4
30	[illegible]	[illegible]	[illegible]	[illegible]	6 54.5
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AUGUST.

Day of Month	Apparent Right Ascension	Var. of R.A. for 1 Hour	Apparent Declination	Var. of Decl. for 1 Hour	Mer. Passage
	Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m
1	15 29 [illegible]	+0.0[illegible]	16 49 35.3	−0.[illegible]	6 46.6
2	15 29 [illegible]	[illegible]	16 49 [illegible]	0.9[illegible]	6 42.7
3	15 29 12 [illegible]	0.[illegible]	16 50 19.[illegible]	0.9[illegible]	6 38.8
4	15 29 14 [illegible]	0.107	16 50 43.7	1.0[illegible]	6 34.9
5	15 29 17 [illegible]	0.12[illegible]	16 51 9.2	1.0[illegible]	6 31.0
6	15 29 20.50	+0.140	16 51 36.2	−1.15	6 27.2
7	15 29 24 [illegible]	0.157	16 52 4.6	1.[illegible]	6 23.3
8	15 29 [illegible]	0.173	16 52 34.4	1.[illegible]	6 19.4
9	15 29 32 [illegible]	0.1[illegible]	16 53 5.5	1.[illegible]	6 15.6
10	15 29 37 [illegible]	0.[illegible]	16 53 38.0	1.[illegible]	6 11.7
11	15 29 42.20	+0.[illegible]	16 54 11.8	−1.44	6 7.9
12	15 29 47.70	0.23[illegible]	16 54 47.0	1.50	6 4.0
13	15 29 [illegible]	0.25[illegible]	16 55 23.6	1.55	6 0.2
14	15 29 [illegible] 57	0.[illegible]	16 56 1.5	1.6[illegible]	5 56.4
15	15 30 6.53	0.[illegible]	16 56 40.7	1.66	5 52.6
16	15 30 13.57	+0.[illegible]	16 57 21.2	−1.71	5 48.8
17	15 30 [illegible]	0.31[illegible]	16 58 2.9	1.77	5 44.9
18	15 30 [illegible]	0.33[illegible]	16 58 45.9	1.8[illegible]	5 41.1
19	15 30 [illegible]	0.3[illegible]	16 59 30.2	1.8[illegible]	5 37.3
20	15 30 4[illegible]	0.[illegible]	17 0 15.8	1.9[illegible]	5 33.5
21	15 30 54.44	+0.3[illegible]	17 1 2.7	−1.9[illegible]	5 29.8
22	15 31 3.75	0.3[illegible]	17 1 50.9	2.0[illegible]	5 26.0
23	15 31 13.4[illegible]	0.4[illegible]	17 2 40.3	2.0[illegible]	5 22.2
24	15 31 23.4[illegible]	0.4[illegible]	17 3 3[illegible].8	2.1[illegible]	5 18.4
25	15 31 3[illegible]	0.44[illegible]	17 4 22.6	2.18	5 14.7
26	15 31 44.[illegible]	+0.4[illegible]	17 5 15.6	−2.2[illegible]	5 10.9
27	15 31 5[illegible]	0.4[illegible]	17 6 9.7	2.2[illegible]	5 7.2
28	15 32 7.[illegible]	0.4[illegible]	17 7 5.0	2.3[illegible]	5 3.4
29	[illegible]	0.[illegible]	17 8 1.4	2.3[illegible]	4 59.7
30	15 3[illegible] 41	0.5[illegible]	17 8 59.0	2.43	4 56.0
31	15 32 44.[illegible]	+0.[illegible]	17 9 57.7	−2.47	4 52.3
32	15 32 5[illegible]	+0.5[illegible]	17 10 57.4	2.5[illegible]	4 48.6

Day of the Month	6 h	12h	18h	24 h
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Day of the Month	6 h	12h	18h	24 h
[illegible]	8.0	[illegible]	7.8	7.7
[illegible]	0.3	[illegible]	[illegible]	0.3

[illegible] passage [illegible] that the [illegible] meridian [illegible]

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Decl. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	15 32 56.96	+0.547	−17 10 57.4	−2.52	4 48.6	1	15 41 53.55	+0.924	−17 47 45.1	−3.50	2 59.5
2	15 33 10.25	0.561	17 11 58.2	2.56	4 44.9	2	15 42 15.85	0.934	17 49 9.5	3.52	2 56.0
3	15 33 23.89	0.575	17 13 0.1	2.60	4 41.2	3	15 42 38.39	0.944	17 50 34.3	3.54	2 52.4
4	15 33 37.87	0.589	17 14 3.0	2.64	4 37.5	4	15 43 1.19	0.954	17 51 59.6	3.56	2 48.9
5	15 33 52.18	0.603	17 15 6.9	2.68	4 33.8	5	15 43 24.22	0.964	17 53 25.3	3.58	2 45.3
6	15 34 6.83	+0.617	−17 16 11.8	−2.72	4 30.1	6	15 43 47.48	+0.974	−17 54 51.4	−3.60	2 41.8
7	15 34 21.82	0.631	17 17 17.7	2.76	4 26.4	7	15 44 10.97	0.984	17 56 17.9	3.62	2 38.2
8	15 34 37.14	0.645	17 18 24.5	2.80	4 22.7	8	15 44 34.68	0.993	17 57 44.9	3.64	2 34.7
9	15 34 52.78	0.659	17 19 32.3	2.84	4 19.0	9	15 44 58.62	1.002	17 59 12.2	3.65	2 31.1
10	15 35 8.75	0.672	17 20 41.0	2.88	4 15.4	10	15 45 22.77	1.011	18 0 39.8	3.66	2 27.6
11	15 35 25.04	+0.685	−17 21 50.6	−2.92	4 11.7	11	15 45 47.13	+1.020	−18 2 7.7	−3.67	2 24.1
12	15 35 41.64	0.698	17 23 1.1	2.96	4 8.1	12	15 46 11.71	1.029	18 3 35.9	3.68	2 20.6
13	15 35 58.56	0.711	17 24 12.5	3.00	4 4.4	13	15 46 36.49	1.037	18 5 4.5	3.69	2 17.0
14	15 36 15.80	0.724	17 25 24.7	3.03	4 0.8	14	15 47 1.47	1.045	18 6 33.3	3.70	2 13.5
15	15 36 33.35	0.737	17 26 37.8	3.06	3 57.1	15	15 47 26.65	1.053	18 8 2.3	3.71	2 10.0
16	15 36 51.20	+0.750	−17 27 51.7	−3.10	3 53.5	16	15 47 52.03	+1.061	−18 9 31.5	−3.72	2 6.5
17	15 37 9.35	0.763	17 29 6.4	3.13	3 49.8	17	15 48 17.60	1.069	18 11 1.0	3.73	2 3.0
18	15 37 27.80	0.775	17 30 21.8	3.17	3 46.2	18	15 48 43.35	1.077	18 12 30.7	3.74	1 59.5
19	15 37 46.55	0.787	17 31 38.0	3.20	3 42.6	19	15 49 9.29	1.085	18 14 0.5	3.74	1 56.0
20	15 38 5.59	0.799	17 32 55.0	3.23	3 39.0	20	15 49 35.41	1.092	18 15 30.5	3.75	1 52.5
21	15 38 24.92	+0.811	−17 34 12.7	−3.26	3 35.4	21	15 50 1.71	+1.099	−18 17 0.7	−3.75	1 49.0
22	15 38 44.54	0.823	17 35 31.1	3.29	3 31.8	22	15 50 28.18	1.106	18 18 31.0	3.76	1 45.5
23	15 39 4.45	0.835	17 36 50.3	3.32	3 28.2	23	15 50 54.81	1.113	18 20 1.3	3.76	1 42.0
24	15 39 24.64	0.847	17 38 10.1	3.34	3 24.6	24	15 51 21.60	1.120	18 21 31.7	3.76	1 38.5
25	15 39 45.11	0.859	17 39 30.5	3.36	3 21.0	25	15 51 48.56	1.126	18 23 2.2	3.77	1 35.0
26	15 40 5.85	+0.870	−17 40 51.4	−3.39	3 17.4	26	15 52 15.66	+1.132	−18 24 32.7	−3.77	1 31.5
27	15 40 26.87	0.881	17 42 13.0	3.41	3 13.8	27	15 52 42.91	1.138	18 26 3.2	3.77	1 28.0
28	15 40 48.15	0.892	17 43 35.2	3.44	3 10.2	28	15 53 10.31	1.144	18 27 33.7	3.77	1 24.6
29	15 41 9.69	0.903	17 44 57.9	3.46	3 6.6	29	15 53 37.85	1.150	18 29 4.2	3.77	1 21.1
30	15 41 31.49	0.914	17 46 21.2	3.48	3 3.1	30	15 54 5.52	1.155	18 30 34.7	3.77	1 17.6
31	15 41 53.55	+0.924	−17 47 45.1	−3.50	2 59.5	31	15 54 33.31	+1.160	−18 32 5.1	−3.76	1 14.1
32	15 42 15.85	+0.934	−17 49 9.5	−3.52	2 56.0	32	15 55 1.24	+1.165	−18 33 35.4	−3.76	1 10.7

Day of the Month.	6th.	14th.	22d.	30th.	Day of the Month.	8th.	16th.	24th.	32d.
	″	″	″	″		″	″	″	″
Semidiameter	7.6	7.5	7.4	7.4	Semidiameter	7.3	7.2	7.2	7.2
Horizontal Parallax . .	0.9	0.9	0.8	0.8	Horizontal Parallax . .	0.8	0.8	0.8	0.8

NOTE.—The sign + indicates north declinations; the sign − indicates south declinations.

GREENWICH MEAN TIME.

Day of Month	NOVEMBER Apparent Right Ascension	Var. of R.A. for 1 Hour	Apparent Declination	Var. of Decl. for 1 Hour	Meridian Passage	Day of Month	DECEMBER Apparent Right Ascension	Var. of R.A. for 1 Hour	Apparent Declination	Var. of Decl. for 1 Hour	Meridian Passage
	Noon	Noon	Noon	Noon			Noon	Noon	Noon	Noon	
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
1	15 55 1 84	+1.[illegible]	18 33 3[illegible] 4	3.[illegible]	1 1[illegible] 7	1	16 9 34 [illegible]	+1.[illegible]	19 16 40 4	3.[illegible]	23 23 [illegible]
2	15 55 [illegible]	[illegible]	18 35 5[illegible]	3.[illegible]	1 7 3	2	16 10 4 54	[illegible]	19 18 9 [illegible]	[illegible]	23 [illegible] 4
3	15 55 5[illegible] 45	[illegible]	18 [illegible]	[illegible]	1 3 [illegible]	3	16 [illegible] 33 [illegible]	[illegible]	19 19 [illegible]	[illegible]	23 1[illegible]
4	15 56 [illegible]	[illegible]	18 3[illegible] 5.[illegible]	3.[illegible]	1 0 4	4	16 11 3 35	[illegible]	19 20 4[illegible] 1	[illegible]	23 13 3
5	15 56 54 10	[illegible]	18 39 35 [illegible]	3.[illegible]	0 5[illegible]	5	16 11 32 [illegible]	[illegible]	19 22 6.5	3.[illegible]	23 10 1
6	15 57 22 [illegible]	+1.[illegible]	18 41 [illegible]	−3.[illegible]	0 53 4	6	16 12 2 21	+1.[illegible]	19 23 24 3	−3.01	23 6 [illegible]
7	15 57 51 15	[illegible]	18 42 34 [illegible]	3.[illegible]	0 4[illegible]	7	16 12 31 57	[illegible]	19 24 41 5	3.[illegible]	23 3 [illegible]
8	15 58 [illegible] 8[illegible]	[illegible]	18 44 4.1	3.[illegible]	0 46 5	8	16 13 0 [illegible]	[illegible]	19 25 58 1	3.[illegible]	22 [illegible] 7
9	15 5[illegible] 4[illegible]	[illegible]	18 45 3[illegible]	3.[illegible]	0 43 0	9	16 13 [illegible] 15	[illegible]	19 27 14 1	3.[illegible]	22 [illegible]
10	15 5[illegible] 17 4[illegible]	[illegible]	18 47 [illegible] 1	3.[illegible]	0 39 6	10	16 13 [illegible] 33	[illegible]	19 2[illegible] 29 5	3.[illegible]	22 52 [illegible]
11	15 5[illegible] 4[illegible] 34	+[illegible]	18 48 [illegible] 7	3.[illegible]	0 36 1	11	16 14 28 50	+1.[illegible]	19 [illegible] 44 2	−3.[illegible]	22 4[illegible] 4
12	16 0 1[illegible] 34	[illegible]	18 4[illegible]	3.[illegible]	0 32 7	12	16 14 57 5[illegible]	[illegible]	19 [illegible] 5[illegible] 3	3.[illegible]	22 45 [illegible]
13	16 [illegible] 44 41	[illegible]	18 51 27.2	3.[illegible]	0 2[illegible]	13	16 15 2[illegible] 5[illegible]	[illegible]	19 32 1[illegible] 7	3.[illegible]	22 42 5
14	16 1 1[illegible]	[illegible]	18 52 [illegible]	3.[illegible]	0 2[illegible]	14	16 15 55 51	[illegible]	19 33 24 5	3.[illegible]	22 39 0
15	16 1 4[illegible]	[illegible]	18 54 22 5	3.[illegible]	0 22 3	15	16 16 24 [illegible]	[illegible]	19 34 36 6	[illegible]	22 35 6
16	16 2 1[illegible]	+[illegible]	18 55 4[illegible]	3.[illegible]	0 18 3	16	16 16 53.[illegible]	+[illegible]	19 35 48.0	[illegible]	22 32 1
17	16 2 41 34	[illegible]	18 5[illegible]	3.[illegible]	0 15 4	17	16 17 2[illegible]	[illegible]	19 [illegible] 58 7	[illegible]	22 2[illegible] 7
18	16 3 1[illegible]	[illegible]	18 5[illegible] 43 2	3.[illegible]	0 12 0	18	16 1[illegible]	[illegible]	19 3[illegible] 8 7	[illegible]	22 25 2
19	16 3 [illegible]	[illegible]	19 0 9 4	3.[illegible]	0 8 6	19	16 1[illegible]	[illegible]	19 [illegible]	[illegible]	22 21.[illegible]
20	16 4 [illegible]	[illegible]	19 1 15 [illegible]	3.[illegible]	0 5 2	20	16 18 4[illegible] 21	[illegible]	19 4[illegible] 5	[illegible]	22 1[illegible]
21	16 4 [illegible]	+[illegible]	19 3 0 5	−3.[illegible]	[illegible]	21	16 19 1[illegible] 46	+[illegible]	19 41 34 3	−[illegible]	22 14 8
22	16 5 [illegible]	[illegible]	19 4 25 4	3.[illegible]	23 54 [illegible]	22	16 19 43 59	[illegible]	19 42 41 3	[illegible]	22 11 3
23	16 5 [illegible]	[illegible]	19 5 4[illegible]	3.[illegible]	23 5[illegible] 4	23	16 20 11 6[illegible]	[illegible]	19 43 47 6	[illegible]	22 7 [illegible]
24	16 6 [illegible]	[illegible]	19 7 [illegible]	3.[illegible]	23 4[illegible]	24	16 20 [illegible]	[illegible]	19 44 53 1	[illegible]	22 4 4
25	16 6 3[illegible]	[illegible]	19 [illegible]	3.[illegible]	23 44 5	25	16 21 7 25	[illegible]	19 45 57 9	[illegible]	22 0 [illegible]
26	16 7 [illegible]	+1.[illegible]	−19 10 1 0	−3.[illegible]	23 41 0	26	16 21 34 [illegible]	+1.[illegible]	19 47 2 [illegible]	−[illegible]	21 57.4
27	16 7 [illegible]	[illegible]	19 11 25 [illegible]	3.[illegible]	23 3[illegible]	27	16 22 2 32	[illegible]	19 48 3 3	[illegible]	21 54 0
28	16 8 [illegible]	[illegible]	19 1[illegible] 45 [illegible]	3.[illegible]	23 34 1	28	16 22 [illegible]	[illegible]	19 4[illegible] 7 [illegible]	[illegible]	21 5[illegible]
29	16 8 [illegible]	[illegible]	19 14 [illegible]	3.[illegible]	23 3[illegible]	29	16 22 5[illegible]	[illegible]	19 50 9 [illegible]	[illegible]	21 4[illegible]
30	16 9 3[illegible]	[illegible]	19 15 [illegible]	3.[illegible]	23 27 [illegible]	30	16 23 23 [illegible]	[illegible]	19 51 [illegible] 4	[illegible]	21 43.3
31	16 [illegible]	+[illegible]	−19 [illegible]	[illegible]	[illegible]	31	16 23 [illegible]	+[illegible]	19 52 10 4	[illegible]	21 40.[illegible]
32	16 10 4 [illegible]	+[illegible]	−19 1[illegible]	−3.[illegible]	[illegible]	32	16 24 17 [illegible]	+[illegible]	−19 53 9 [illegible]	−[illegible]	21 3[illegible]

Day of the Month	[illegible]	[illegible]	[illegible]	[illegible]	Day of the Month	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	″	″	″	″		″	″	″	″	″
Semi-diameter	[illegible]	[illegible]	[illegible]	[illegible]	Semi-diameter	7 1	7 1	[illegible]	[illegible]	7 1
Horizontal Parallax	[illegible]	[illegible]	[illegible]	[illegible]	Horizontal Parallax	0 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

GREENWICH MEAN TIME.

Month and Day.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Day. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Day. Noon.	Meridian Passage.	Month and Day.	Apparent Right Ascension. Noon.	Var. of R. A. for 1 Day. Noon.	Apparent Declination. Noon.	Var. of Decl. for 1 Day. Noon.	Meridian Passage.
	h m s	s	° ′ ″	″	h m		h m s	s	° ′ ″	″	h m
Jan. 1	15 40 51.39	+12.120	−19 22 25.1	−40.02	20 52.0	July 4	15 32 12.67	−5.817	−18 53 45.9	+19.17	8 39.7
5	15 41 38.73	11.542	19 25 0.9	37.86	20 37.1	8	15 31 50.81	5.109	18 52 34.1	16.71	8 23.6
9	15 42 23.67	10.922	19 27 27.8	35.60	20 22.1	12	15 31 31.84	4.370	18 51 32.4	14.14	8 7.6
13	15 43 6.05	10.261	19 29 45.6	33.26	20 7.0	16	15 31 15.88	3.607	18 50 41.1	11.47	7 51.6
17	15 43 45.71	9.565	19 31 53.8	30.84	19 52.0	20	15 31 3.01	2.823	18 50 0.8	8.69	7 35.7
21	15 44 22.53	+8.838	−19 33 52.2	28.35	19 36.8	24	15 30 53.33	2.012	18 49 31.7	+5.82	7 19.8
25	15 44 56.37	8.075	19 35 40.5	25.76	19 21.6	28	15 30 46.94	1.182	18 49 14.3	+2.88	7 4.0
29	15 45 27.09	7.280	19 37 18.2	23.08	19 6.4	Aug 1	15 30 43.89	0.338	18 49 8.7	−0.10	6 48.2
Feb. 2	15 45 54.57	6.454	19 38 45.1	20.35	18 51.1	5	15 30 44.24	+0.512	18 49 15.1	3.10	6 32.5
6	15 46 18.69	5.604	19 40 1.0	17.59	18 35.8	9	15 30 47.99	1.363	18 49 33.5	6.09	6 16.8
10	15 46 39.38	+4.736	−19 41 5.8	14.80	18 20.4	13	15 30 55.14	+2.211	18 50 3.8	−9.08	6 1.2
14	15 46 56.56	3.855	19 41 59.4	11.99	18 4.9	17	15 31 5.67	3.053	18 50 46.1	12.04	5 45.7
18	15 47 10.21	2.966	19 42 41.7	9.15	17 49.4	21	15 31 19.56	3.892	18 51 40.1	14.96	5 30.2
22	15 47 20.28	2.067	19 43 12.6	6.31	17 33.9	25	15 31 36.80	4.726	18 52 45.7	17.85	5 14.7
26	15 47 26.74	1.162	19 43 32.2	3.46	17 18.2	29	15 31 57.35	5.548	18 54 2.8	20.66	4 59.3
Mar. 2	15 47 29.58	+0.258	−19 43 40.3	0.62	17 2.5	Sept. 2	15 32 21.16	+6.351	18 55 30.9	23.39	4 44.0
6	15 47 28.81	−0.642	19 43 37.1	+2.21	16 46.8	6	15 32 48.13	7.130	18 57 9.8	26.03	4 28.7
10	15 47 24.46	1.527	19 43 22.7	4.97	16 31.0	10	15 33 18.17	7.885	18 58 59.0	28.54	4 13.5
14	15 47 16.62	2.390	19 42 57.4	7.67	16 15.1	14	15 33 51.18	8.617	19 0 58.0	30.94	3 58.3
18	15 47 5.37	3.232	19 42 21.4	10.31	15 59.2	18	15 34 27.07	9.323	19 3 6.4	33.23	3 43.2
22	15 46 50.80	−4.049	−19 41 35.0	+12.89	15 43.2	22	15 35 5.73	+10.004	19 5 23.7	35.40	3 28.1
26	15 46 33.02	4.835	19 40 38.4	15.40	15 27.2	26	15 35 47.06	10.658	19 7 49.4	37.43	3 13.1
30	15 46 12.14	5.590	19 39 31.9	17.81	15 11.1	30	15 36 30.92	11.268	19 10 22.9	39.30	2 58.1
Apr. 3	15 45 48.33	6.306	19 38 16.1	20.07	14 55.0	Oct 4	15 37 17.15	11.841	19 13 3.6	41.01	2 43.1
7	15 45 21.76	6.970	19 36 51.5	22.22	14 38.8	8	15 38 5.60	12.376	19 15 50.8	42.55	2 28.2
11	15 44 52.64	7.580	19 35 18.5	+24.23	14 22.6	12	15 38 56.11	+12.874	19 18 43.8	43.94	2 13.3
15	15 44 21.19	8.135	19 33 38.0	26.01	14 6.3	16	15 39 48.54	13.333	19 21 42.1	45.18	1 58.5
19	15 43 47.63	8.636	19 31 50.4	27.72	13 50.0	20	15 40 42.72	13.752	19 24 45.0	46.24	1 43.6
23	15 43 12.18	9.080	19 29 56.4	29.21	13 33.7	24	15 41 38.50	14.129	19 27 51.8	47.14	1 28.8
27	15 42 35.07	9.46[illegible]	19 27 56.8	30.5[illegible]	13 17.4	28	15 42 35.69	14.461	19 31 1.9	47.87	1 14.0
May 1	15 41 56.56	9.[illegible]	19 25 52.2	+31.[illegible]	13 1.0	Nov. 1	15 43 34.10	+14.75[illegible]	19 34 14.5	48.40	0 59.3
5	15 41 16.02	10.02[illegible]	19 23 43.6	32.[illegible]	12 44.0	5	15 44 33.52	14.996	19 37 28.8	48.77	0 44.5
9	15 40 36.44	10.19[illegible]	19 21 31.0	33.2[illegible]	12 28.2	9	15 45 33.77	15.180	19 40 41.4	48.98	0 29.8
13	15 39 55.42	10.301	19 19 18.0	3[illegible].6[illegible]	12 11.8	13	15 46 34.66	15.288	19 44 0.4	49.01	0 15.1
17	15 39 14.12	10.3[illegible]	19 17 2.7	3[illegible].91	11 55.4	17	15 47 36.01	15.3[illegible]	19 47 16.3	48.90	0 0.4 / 23 5[illegible]
21	15 38 32.81	−10.307	19 14 47.0	+3[illegible].91	11 39.0	21	15 48 37.62	+15.419	19 50 31.4	48.63	23 42.0
25	15 37 51.75	10.210	19 12 31.7	3[illegible].69	11 22.6	25	15 49 39.20	15.40[illegible]	19 53 45.1	48.18	23 27.3
29	15 37 11.22	10.042	19 10 17.8	3[illegible].22	11 6.2	29	15 50 40.70	15.[illegible]	19 56 56.6	47.[illegible]	23 12.5
June 2	15 36 31.51	9.802	19 8 6.3	3[illegible]	10 49.8	Dec. 3	15 51 41.01	15.21[illegible]	20 0 5.3	46.80	22 57.8
6	15 35 52.69	9.497	19 5 58.1	[illegible]	10 33.4	7	15 52 42.44	15.[illegible]	20 3 10.8	45.90	22 43.1
10	15 35 15.62	−9.128	19 3 51.2	[illegible]	10 17.1	11	15 53 42.19	+14.[illegible]	20 6 12.3	44.86	22 28.4
14	15 34 39.94	8.702	19 1 55.5	[illegible]	10 0.8	15	15 54 40.97	14.[illegible]	20 9 9.5	43.68	22 13.6
18	15 34 6.07	8.226	19 0 2.6	[illegible]	9 44.5	19	15 55 38.58	14.2[illegible]	20 12 1.6	42.[illegible]	21 58.9
22	15 33 34.20	7.7[illegible]	18 58 16.4	[illegible]	9 28.2	23	15 56 34.81	[illegible]	20 14 48.3	40.98	21 44.1
26	15 33 4.54	7.121	18 56 37.7	[illegible]	9 12.0	27	15 57 29.45	[illegible]	20 17 29.0	[illegible]	21 29.2
30	15 32 3[illegible]	−6.491	18 55 7.3	+2[illegible]	8 55.9	31	15 58 22.28	+12.[illegible]	20 20 3.3	3[illegible].7	21 14.4
July 4	15 32 12.67	5.81[illegible]	−18 53 45.[illegible]	+[illegible]	8 39.7	35	15 59 13.13	+12.4[illegible]	20 22 30.7	[illegible]	20 59.5

Greatest semidiameter, May 18, 1″.88 Greatest horizontal parallax, May 18, 0″.50
Least semidiameter, November 22, 1″.69 Least horizontal parallax, November 21, 0″.45

GREENWICH MEAN TIME.

Date	Apparent R.A. Noon	Var. of R.A. Noon	Apparent Decl. Noon	Var. of Decl. Noon	Meridian Passage	Date	Apparent R.A. Noon	Var. of R.A. Noon	Apparent Decl. Noon	Var. of Decl. Noon	Meridian Passage
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
Jan 1	5 9 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 4	5 [illegible]	[illegible]	+21 4[illegible]	[illegible]	[illegible]
5	5 9 11 [illegible]	[illegible]	21 [illegible]	[illegible]	[illegible]	[illegible]	5 21 14 [illegible]	[illegible]	21 49 11 [illegible]	[illegible]	22 11 [illegible]
[illegible]	5 8 4[illegible]	[illegible]	21 [illegible]	[illegible]	[illegible]	1[illegible]	5 21 [illegible]	[illegible]	21 [illegible]	[illegible]	[illegible]
1[illegible]	5 [illegible]	[illegible]	21 [illegible]	[illegible]	[illegible]	1[illegible]	[illegible]	[illegible]	21 [illegible]	[illegible]	21 4[illegible]
1[illegible]	5 8 1 74	[illegible]	21 [illegible]	[illegible]	[illegible]	2[illegible]	5 [illegible]	[illegible]	21 [illegible]	[illegible]	21 25 4
21	5 7 41 [illegible]	[illegible]	+21 [illegible]	[illegible]	9 1 7	24	5 [illegible]	[illegible]	+21 50 [illegible]	[illegible]	21 1[illegible]
25	5 7 2[illegible]	[illegible]	21 2[illegible]	[illegible]	[illegible]	2[illegible]	5 [illegible]	[illegible]	21 51 1[illegible] 4	[illegible]	[illegible]
2[illegible]	5 7 [illegible]	[illegible]	21 2[illegible] 11 4	[illegible]	[illegible]	Aug 1	5 24 [illegible]	[illegible]	21 51 [illegible] 4	[illegible]	[illegible]
Feb 2	5 [illegible]	[illegible]	21 2[illegible]	[illegible]	[illegible]	5	5 24 55 [illegible]	[illegible]	21 51 54 [illegible]	[illegible]	[illegible]
6	5 6 [illegible]	[illegible]	21 2[illegible]	[illegible]	7 [illegible]	9	5 25 21 [illegible]	[illegible]	21 52 9 1	[illegible]	[illegible]
10	5 6 [illegible]	[illegible]	+21 2[illegible]	[illegible]	7 41 [illegible]	13	5 25 45 [illegible]	[illegible]	+21 52 21 7	[illegible]	[illegible]
14	5 6 21 [illegible]	[illegible]	21 2[illegible] 4 0	[illegible]	7 [illegible]	17	5 26 7.22	[illegible]	21 52 [illegible]	[illegible]	[illegible]
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22	5 6 12 [illegible]	[illegible]	21 2[illegible]	[illegible]	[illegible]	2[illegible]	5 2[illegible] 4[illegible] 74	[illegible]	21 52 4[illegible]	[illegible]	[illegible]
2[illegible]	5 6 11 [illegible]	[illegible]	21 2[illegible] 20 [illegible]	[illegible]	6 [illegible]	2[illegible]	5 27 [illegible]	[illegible]	21 5[illegible]	[illegible]	[illegible]
Mar 2	5 [illegible]	[illegible]	+21 2[illegible] 45	[illegible]	6 2[illegible]	Sept 2	5 2[illegible]	[illegible]	+21 52 [illegible]	[illegible]	[illegible]
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1[illegible]	5 [illegible]	[illegible]	21 [illegible]	[illegible]	[illegible]	1[illegible]	5 2[illegible]	[illegible]	21 52 [illegible] 7	[illegible]	[illegible]
14	5 [illegible]	[illegible]	21 [illegible]	[illegible]	[illegible]	14	5 27 44 [illegible]	[illegible]	21 52 4[illegible] 1	[illegible]	17 4[illegible]
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MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude. Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Jan. −1	350 2 23.8	4 30 23.1	−11 43.7	−5 53 11.1	+17 52.0	9.5628732	0.0630698	0.0548842
1	359 20 7.7	4 47 31.6	12 48.3	5 11 50.2	23 32.6	9.5490191	0.0462082	0.0370251
3	9 13 4.6	5 5 31.5	12 29.2	4 18 51.1	29 27.2	9.5352785	0.0273213	0.0170885
5	19 42 23.0	5 23 45.2	10 32.4	3 14 8.0	35 11.8	9.5221567	0.0063252	9.9950390
7	30 47 37.9	5 41 17.5	6 57.7	1 58 34.0	40 11.3	9.5102659	9.9832496	9.9709906
9	42 26 17.7	5 56 56.9	− 2 5.7	0 34 22.1	+43 41.9	9.5002892	9.9583145	9.9452948
11	54 33 14.9	6 9 20.6	+ 3 19.1	+0 54 44.0	44 58.4	9.4929099	9.9320306	9.9186472
13	67 0 35.3	6 17 7.6	8 15.7	2 23 40.8	43 28.9	9.4887045	9.9052994	9.8921699
15	79 37 59.6	6 19 17.0	11 41.3	3 46 44.1	39 6.6	9.4880311	9.8794679	9.8674220
17	92 13 41.6	6 15 25.1	12 52.3	4 58 29.3	32 18.0	9.4909496	9.8562731	9.8462595
19	104 35 52.9	6 5 53.8	+11 39.0	+5 54 52.3	+23 54.0	9.4972065	9.8376036	9.8304971
21	116 34 11.9	5 51 46.1	8 26.1	6 33 43.7	14 57.5	9.5062938	9.8250841	9.8214516
23	128 0 50.7	5 34 28.8	+ 4 0.1	6 54 57.8	+ 6 24.0	9.5175547	9.8196224	9.8195578
25	138 51 0.6	5 15 31.8	− 0 46.8	7 0 0.0	− 1 9.7	9.5302954	9.8211614	9.8242919
27	149 2 43.9	4 56 13.5	5 11.5	6 51 11.4	7 25.7	9.5438713	9.8287766	9.8344277
29	158 36 19.2	4 37 31.6	− 8 45.1	+6 31 13.2	−12 19.9	9.5577351	9.8410493	9.8484536
31	167 33 39.7	4 20 3.5	11 13.6	6 2 41.1	16 0.8	9.5714545	9.8564657	9.8649282
Feb. 2	175 57 36.4	4 4 9.9	12 34.0	5 27 52.2	18 38.7	9.5847055	9.8737040	9.8826755
4	183 51 27.8	3 49 58.8	12 51.0	4 48 40.1	20 26.0	9.5972569	9.8917444	9.9008300
6	191 18 40.4	3 37 30.5	12 13.7	4 6 34.8	21 33.6	9.6089514	9.9098682	9.9188076
8	198 22 35.4	3 26 40.4	−10 52.5	+3 22 45.7	−22 11.1	9.6196864	9.9276080	9.9362391
10	205 6 22.8	3 17 21.6	8 58.0	2 38 5.5	22 25.8	9.6294004	9.9446786	9.9529104
12	211 32 57.9	3 9 27.0	6 40.2	1 53 13.5	22 23.8	9.6380586	9.9609238	9.9687122
14	217 45 1.9	3 2 49.2	4 8.4	1 8 38.8	22 9.0	9.6456458	9.9762720	9.9836022
16	223 45 1.3	2 57 21.4	− 1 30.5	+0 24 43.6	21 44.8	9.6521582	9.9907039	9.9975800
18	229 35 10.3	2 52 57.8	+ 1 7.0	−0 18 15.7	−21 13.5	9.6575988	0.0042339	0.0106702
20	235 17 32.1	2 49 33.5	3 38.5	1 0 6.7	20 36.6	9.6619749	0.0168942	0.0229110
22	240 54 1.3	2 47 4.6	5 58.7	1 40 39.0	19 54.9	9.6652943	0.0287265	0.0343459
24	246 26 25.9	2 45 28.3	8 3.9	2 19 43.5	19 8.9	9.6675641	0.0397754	0.0450208
26	251 56 28.1	2 44 42.4	9 50.2	2 57 11.9	18 18.8	9.6687904	0.0500870	0.0549795
28	257 25 48.0	2 44 45.6	+11 14.4	−3 32 55.6	17 24.2	9.6689755	0.0597033	0.0642633
Mar. 2	262 56 3.1	2 45 37.7	12 13.9	4 6 45.4	16 24.7	9.6681205	0.0686635	0.0729083
4	268 28 51.6	2 47 19.2	12 46.5	4 38 30.5	15 19.4	9.6662233	0.0770015	0.0809464
6	274 5 53.5	2 49 51.2	12 50.2	5 7 58.3	14 7.2	9.6632788	0.0847457	0.0884022
8	279 48 51.6	2 53 15.9	12 23.7	5 34 53.4	12 46.4	9.6592804	0.0919178	0.0952938
10	285 39 34.1	2 57 36.2	+11 26.5	5 58 57.2	−11 15.5	9.6542197	0.0985317	0.1016321
12	291 39 55.6	3 2 55.6	9 58.0	6 19 47.2	9 32.2	9.6480900	0.1045945	0.1074183
14	297 51 58.9	3 9 18.8	7 59.3	6 36 55.9	7 33.8	9.6408800	0.1101023	0.1126448
16	304 17 56.4	3 16 50.5	5 32.8	6 49 50.1	5 17.1	9.6326085	0.1150429	0.1172928
18	311 0 10.4	3 25 36.4	+ 2 42.8	6 57 49.9	− 2 58.8	9.6232681	0.1193902	0.1213299
20	318 1 15.5	3 35 42.4	− 0 24.3	7 0 8.4	+ 0 25.0	9.6128017	0.1231055	0.1247098
22	325 23 56.9	3 47 1.5	3 39.6	6 55 50.6	3 58.0	9.6015301	0.1261341	0.1273691
24	333 11 8.9	4 0 13.4	6 40.7	6 43 54.8	8 3.6	9.5892700	0.1284039	0.1292262
26	341 25 50.6	4 14 43.2	9 38.4	6 23 13.3	12 43.7	9.5762465	0.1298222	0.1301770
28	350 10 50.0	4 30 38.6	11 45.4	5 52 37.7	17 57.2	9.5626629	0.1302741	0.1300957
30	359 29 14.7	4 47 47.9	−12 48.8	5 11 6.2	+23 38.1	9.5488076	0.1296224	0.1288333
32	9 22 45.2	5 5 48.7	−12 28.2	−4 17 56.1	+29 32.7	9.5350728	0.1277068	0.1262109

MERCURY

GREENWICH MEAN NOON

Date	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Logarithm of Radius Vector	Logarithm of Distance from Earth: At Date	At Interme. Date
Apr. 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
May 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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MERCURY.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
July 2	31 8 52.0	5 41 47.3	− 6 49.8	−1 56 6.2	+40 19.2	9.5099356	0.0679150	0.0749677
4	42 48 27.2	5 57 22.0	− 1 55.9	−0 31 41.8	43 46.4	9.5000282	0.0816323	0.0878839
6	54 56 7.9	6 9 38.6	+ 3 29.1	+0 57 28.8	44 58.5	9.4927377	0.0937010	0.0990633
8	67 23 55.1	6 17 16.1	8 23.8	2 26 19.6	43 23.3	9.4886354	0.1039547	0.1083627
10	80 1 25.8	6 19 14.8	11 45.7	3 49 6.7	38 56.2	9.4880719	0.1122798	0.1157028
12	92 36 52.7	6 15 12.0	+12 52.1	+5 0 26.9	+32 3.4	9.4910966	0.1186338	0.1210791
14	104 58 28.1	6 5 31.4	11 34.7	5 56 18.4	23 37.8	9.4974474	0.1230491	0.1245589
16	116 55 55.4	5 51 16.9	8 18.7	6 34 37.8	14 41.5	9.5066101	0.1256253	0.1262687
18	128 21 30.9	5 33 55.3	+ 3 51.4	6 55 20.7	+ 6 9.2	9.5179252	0.1265109	0.1263738
20	139 10 32.1	5 14 56.8	− 0 55.3	6 59 55.4	− 1 22.3	9.5306995	0.1258804	0.1250534
22	149 21 5.6	4 55 39.0	− 5 18.9	+6 50 44.0	− 7 35.4	9.5442906	0.1239147	0.1224853
24	158 53 33.4	4 36 58.8	8 50.7	6 30 27.9	12 27.7	9.5581550	0.1207852	0.1188327
26	167 49 51.0	4 19 33.5	11 17.1	6 1 42.3	16 6.5	9.5718636	0.1166449	0.1142376
28	176 12 50.7	4 3 42.9	12 35.4	5 26 43.8	18 42.7	9.5850955	0.1116249	0.1088196
30	184 5 51.2	3 49 34.8	12 50.6	4 47 25.1	20 28.6	9.5976223	0.1058328	0.1026744
Aug. 1	191 32 18.8	3 37 9.6	− 12 11.8	+4 5 15.5	−21 35.2	9.6092885	0.0993538	0.0958782
3	198 35 35.0	3 26 22.3	10 49.4	3 21 24.1	22 11.9	9.6199931	0.0922540	0.0884867
5	205 18 48.9	3 17 6.2	8 54.1	2 36 43.0	22 26.0	9.6296753	0.0845807	0.0805402
7	211 44 55.8	3 9 14.0	6 35.8	1 51 51.0	22 23.4	9.6383011	0.0763684	0.0720674
9	217 56 36.0	3 2 38.4	4 3.7	1 7 17.4	22 8.4	9.6458557	0.0676386	0.0630826
11	223 56 15.9	2 57 12.7	− 1 25.7	+0 23 23.6	−21 44.0	9.6523354	0.0584002	0.0535912
13	229 46 9.4	2 52 51.0	+ 1 11.6	−0 19 34.0	21 12.6	9.6577441	0.0486549	0.0435901
15	235 28 19.2	2 49 28.4	3 42.9	1 1 22.9	20 35.4	9.6620883	0.0383960	0.0330704
17	241 4 39.7	2 47 1.2	6 2.9	1 41 52.6	19 53.6	9.6653758	0.0276111	0.0220161
19	246 36 58.7	2 45 26.4	8 7.4	2 20 54.3	19 7.5	9.6676140	0.0162826	0.0104084
21	252 6 58.6	2 44 41.8	+ 9 53.1	−2 58 19.7	−18 17.2	9.6688088	0.0043909	9.9982272
23	257 36 18.9	2 44 46.6	11 16.6	3 34 0.1	17 22.4	9.6689629	9.9919153	9.9854529
25	263 6 37.4	2 45 40.1	12 15.4	4 7 46.2	16 22.8	9.6680768	9.9788384	9.9720706
27	268 39 32.2	2 47 23.1	12 47.1	4 39 27.3	15 17.2	9.6661483	9.9651496	9.9580753
29	274 16 43.4	2 49 56.6	12 49.9	5 8 50.5	14 4.8	9.6631723	9.9508503	9.9434782
31	279 59 53.8	2 53 22.8	+12 22.5	−5 35 40.6	−12 43.8	9.6591421	9.9359648	9.9283180
Sept. 2	285 50 52.0	2 57 41.9	11 24.1	5 59 38.8	11 12.6	9.6540406	9.9205481	9.9126703
4	291 51 33.0	3 3 6.3	9 54.6	6 20 22.4	9 28.8	9.6478878	9.9047044	9.8966732
6	298 3 59.5	3 9 31.3	7 55.1	6 37 23.8	7 29.8	9.6406517	9.8886069	9.8805430
8	304 30 24.0	3 17 5.1	5 27.9	6 50 9.4	5 12.6	9.6323423	9.8725254	9.8646089
10	311 13 9.7	3 25 53.6	+ 2 37.3	6 57 50.0	− 2 33.6	9.6229703	9.8568577	9.8493471
12	318 14 51.5	3 36 2.0	− 0 30.4	7 0 6.7	+ 0 31.0	9.6125036	9.8421641	9.8354079
14	325 38 14.3	3 47 35.6	3 45.4	6 55 35.9	4 5.0	9.6011735	9.8291900	9.8236319
16	333 26 13.1	4 0 38.0	6 55.2	6 43 24.0	8 11.6	9.5888881	9.8188042	9.8150223
18	341 41 46.8	4 15 10.5	9 42.0	6 22 26.3	12 52.8	9.5758445	9.8122413	9.8106511
20	350 27 52.4	4 31 8.8	−11 48.3	−5 51 31.6	+18 7.2	9.5622479	9.8103680	9.8114877
22	359 47 9.9	4 48 20.5	12 40.5	5 9 30.4	25 48.7	9.5483000	9.8140784	9.8181732
24	9 41 45.0	5 6 21.0	12 20.1	4 16 7.8	30 11.4	9.5346661	9.8237669	9.8308148
26	20 12 42.1	5 24 3.9	10 24.0	3 10 53.2	35 28.8	9.5215868	9.8392327	9.8489025
28	31 19 31.0	5 42 2.8	6 45.5	1 54 51.9	40 23.2	9.5097681	9.8596779	9.8713903
30	42 59 35.7	5 57 35.3	− 1 51.0	0 30 21.1	+43 48.8	9.4998955	9.8835618	9.8969071
32	55 7 39.3	6 9 47.9	+ 3 33.8	+0 58 51.5	+44 59.6	9.4920496	9.9103445	9.9240021

MERCURY.

GREENWICH MEAN NOON

Date.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Logarithm of [illegible]	Logarithm of Distance from Earth: Date.	Logarithm of Distance from Earth: At Intermediate Date.
Oct. 2	55 7 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.9240081
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.9513549
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	117 6 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1227404	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1347770
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1412546
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1466414
Nov. 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1510359
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1545227
5	218 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1325719
Dec. 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VENUS.

GREENWICH MEAN NOON.

Date.		Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	At Intermediate Date.
		° ′ ″	° ′ ″	′ ″	° ′ ″	′ ″			
Jan.	1	29 16 47.8	1 35 54.0	−3 0.8	−2 27 42.9	+3 54.5	9.8598753	0.0115411	0.0057991
	5	35 40 36.1	1 36 0.3	2 58.4	2 11 11.0	4 21.0	9.8595492	9.9999404	9.9939619
	9	42 4 50.4	1 36 6.9	2 47.1	1 52 59.4	4 44.3	9.8592198	9.9878589	9.9816290
	13	48 29 31.4	1 36 13.6	2 27.5	1 33 21.5	5 4.1	9.8588912	9.9752685	9.9687750
	17	54 54 39.7	1 36 20.6	2 0.4	1 12 31.6	5 20.2	9.8585676	9.9621454	9.9553773
	21	61 20 16.0	1 36 27.6	−1 27.4	−0 50 45.3	+5 32.3	9.8582532	9.9484668	9.9414106
	25	67 46 20.8	1 36 34.8	0 49 9	0 28 18.8	5 40.2	9.8579519	9.9342039	9.9268418
	29	74 12 54.3	1 36 42.0	−0 9.8	−0 5 29.0	5 43.9	9.8576676	9.9193192	9.9116296
Feb.	2	80 39 56.6	1 36 49.2	+0 30.9	+0 17 26.7	5 43.2	9.8574040	9.9037670	9.8957254
	6	87 7 27.5	1 36 56.3	1 10.0	0 40 10.6	5 38.1	9.8571643	9.8874980	9.8790802
	10	93 35 26.2	1 37 3.1	+1 45.6	+1 2 25.3	+5 28.6	9.8569518	9.8704659	9.8616502
	14	100 3 51.5	1 37 9.5	2 15.8	1 23 53.5	5 14.8	9.8567694	9.8526283	9.8433966
	18	106 32 41.5	1 37 15.4	2 39.2	1 44 18.5	4 57.0	9.8566194	9.8339503	9.8242854
	22	113 1 53.9	1 37 20.7	2 54.5	2 3 24.2	4 35.2	9.8565038	9.8143961	9.8042774
	26	119 31 25.9	1 37 25.1	3 0.8	2 20 55.6	4 9.9	9.8564241	9.7939234	9.7833284
Mar.	2	126 1 13.7	1 37 28.6	+2 57.9	+2 36 38.8	+3 41.2	9.8563814	9.7724859	9.7613906
	6	132 31 13.2	1 37 30.9	2 45.9	2 50 21.6	3 9.8	9.8563762	9.7500376	9.7384250
	10	139 1 19.8	1 37 32.1	2 25.4	3 1 53.0	2 35.6	9.8564086	9.7265519	9.7144192
	14	145 31 28.4	1 37 31.9	1 57.4	3 11 4.1	1 59.6	9.8564783	9.7020323	9.6893996
	18	152 1 33.5	1 37 30.4	1 23.4	3 17 48.0	1 22.1	9.8565842	9.6765323	9.6634461
	22	158 31 29.5	1 37 27.4	+0 45.2	+3 21 59.5	+0 43.5	9.8567252	9.6501617	9.6367039
	26	165 1 10.9	1 37 23.1	+0 4.7	3 23 35.5	+0 4.4	9.8568994	9.6231039	9.6094003
	30	171 30 32.2	1 37 17.4	−0 36.0	3 22 35.2	−0 34.6	9.8571041	9.5956400	9.5818807
Apr.	3	177 59 28.1	1 37 10.4	1 14.9	3 18 59.8	1 13.0	9.8573371	9.5681947	9.5546689
	7	184 27 53.7	1 37 2.3	1 49.9	3 12 52.5	1 50.4	9.8575952	9.5414061	9.5285298
	11	190 55 44.9	1 36 53.2	−2 19.2	+3 4 18.7	−2 26.2	9.8578752	9.5161784	9.5045142
	15	197 22 58.1	1 36 43.3	2 41.5	2 53 25.6	3 0.0	9.8581733	9.4937100	9.4839463
	19	203 49 30.6	1 36 32.9	2 55.6	2 40 22.1	3 31.3	9.8584858	9.4754095	9.4682758
	23	210 15 20.4	1 36 22.0	3 1.0	2 25 18.7	3 59.8	9.8588085	9.4627077	9.4588376
	27	216 40 26.3	1 36 10.9	2 57.2	2 8 27.4	4 25.2	9.8591378	9.4567628	9.4565391
May	1	223 4 48.1	1 36 0.0	−2 44.5	+1 50 1.3	−4 47.2	9.8594691	9.4581736	9.4616313
	5	229 28 26.7	1 35 49.4	2 23.7	1 30 14.7	5 5.5	9.8597984	9.4668267	9.4736430
	9	235 51 23.6	1 35 39.2	1 55.9	1 9 22.7	5 19.9	9.8601216	9.4819345	9.4915339
	13	242 13 41.1	1 35 29.7	1 22.4	0 47 41.1	5 30.3	9.8604347	9.5022632	9.5139413
	17	248 35 22.2	1 35 21.0	0 44.9	0 25 26.0	5 36.6	9.8607338	9.5263952	9.5394588
	21	254 56 30.3	1 35 13.2	−0 5.2	+0 2 54.1	−5 38.8	9.8610153	9.5529821	9.5668315
	25	261 17 9.6	1 35 6.6	+0 34.7	−0 19 38.4	5 36.9	9.8612757	9.5808893	9.5950547
	29	267 37 24.5	1 35 1.0	1 12.9	0 41 54.9	5 30.8	9.8615120	9.6092496	9.6234053
June	2	273 57 19.5	1 34 56.6	1 47.5	1 3 39.4	5 20.8	9.8617213	9.6374687	9.6513973
	6	280 16 59.3	1 34 53.4	2 16.8	1 24 36.1	5 7.0	9.8619010	9.6651581	9.6787248
	10	286 36 28.6	1 34 51.4	+2 39.4	1 44 30.2	−4 49.5	9.8620489	9.6920787	9.7052032
	14	292 55 51.8	1 34 50.4	2 54.3	2 3 7.2	4 28.5	9.8621635	9.7180858	9.7307190
	18	299 15 13.3	1 34 50.5	3 0.7	2 20 14.1	4 4.4	9.8622433	9.7430956	9.7552102
	22	305 34 37.1	1 34 51.6	2 58.4	2 35 38.4	3 37.3	9.8622872	9.7670606	9.7786468
	26	311 54 6.8	1 34 53.5	2 47.4	2 49 9.1	3 7.6	9.8622948	9.7899699	9.8010332
	30	318 13 45.7	1 34 56.2	+2 28.3	−3 0 36.4	−2 35.7	9.8622662	9.8118411	9.8223993
	34	324 33 36.7	1 34 59.5	+2 2.0	−3 9 52.0	−2 1.8	9.8622014	9.8327142	9.8427923

VENUS.

GREENWICH MEAN NOON

Date	Heliocentric Longitude Measured in the Orbit	Daily Motion	Reduction to Ecliptic	Heliocentric Latitude	Daily Motion	Logarithm of Radius Vector	Logarithm of Distance from Earth At Date	At Intermediate Date
July 4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Aug 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Sept [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Oct [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Nov [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Dec [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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MARS.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude. Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	At Intermediate Date.
	° ′ ″	′ ″	″	° ′ ″	″			
Jan. 1	90 17 43.0	29 17.26	+53.5	+1 13 38.2	+42.44	0.1973627	9.8059871	9.8135464
5	92 14 31.3	29 7.00	53.9	1 16 25.0	40.92	0.1986426	9.8213885	9.8294765
9	94 10 39.3	28 57.01	53.9	1 19 5.6	39.36	0.1998957	9.8377752	9.8462507
13	96 6 7.7	28 47.29	53.7	1 21 39.9	37.79	0.2011213	9.8548703	9.8636046
17	98 0 58.0	28 37.87	53.3	1 24 7.9	36.20	0.2023179	9.8724288	9.8813192
21	99 55 11.0	28 28.73	+52.7	+1 26 29.5	+34.59	0.2034850	9.8902552	9.8992187
25	101 48 48.1	28 19.89	51.8	1 28 44.6	32.97	0.2046215	9.9081927	9.9171615
29	103 41 50.4	28 11.31	50.6	1 30 53.3	31.36	0.2057265	9.9261124	9.9350315
Feb. 2	105 34 18.9	28 3.00	49.2	1 32 55.5	29.74	0.2067993	9.9439058	9.9527241
6	107 26 14.7	27 55.01	47.8	1 34 51.2	28.11	0.2078389	9.9614770	9.9701541
10	109 17 39.3	27 47.35	+46.2	+1 36 40.4	+26.47	0.2088447	9.9787482	9.9872528
14	111 8 33.8	27 39.95	44.3	1 38 23.0	24.83	0.2098162	9.9956637	0.0039772
18	112 58 59.2	27 32.85	42.2	1 39 59.0	23.19	0.2107527	0.0121904	0.0203014
22	114 48 57.0	27 26.05	39.9	1 41 28.5	21.56	0.2116534	0.0283087	0.0362118
26	116 38 28.0	27 19.53	37.6	1 42 51.5	19.92	0.2125179	0.0440084	0.0516978
Mar. 2	118 27 33.6	27 13.32	+35.1	+1 44 7.9	+18.29	0.2133458	0.0592786	0.0667492
6	120 16 15.0	27 7.44	32.4	1 45 17.8	16.67	0.2141365	0.0741077	0.0813538
10	122 4 33.5	27 1.85	29.7	1 46 21.2	15.03	0.2148898	0.0884869	0.0955064
14	123 52 30.2	26 56.57	26.8	1 47 18.0	13.39	0.2156045	0.1024135	0.1092090
18	125 40 6.5	26 51.60	23.7	1 48 8.3	11.77	0.2162807	0.1158942	0.1224712
22	127 27 23.4	26 46.86	+20.6	+1 48 52.2	+10.17	0.2169182	0.1289420	0.1353077
26	129 14 21.8	26 42.45	17.6	1 49 29.7	8.56	0.2175165	0.1415698	0.1477291
30	131 1 3.5	26 38.35	14.3	1 50 0.7	6.94	0.2180752	0.1537865	0.1597426
Apr. 3	132 47 29.0	26 34.52	11.1	1 50 25.2	5.34	0.2185946	0.1655975	0.1713519
7	134 33 40.0	26 31.02	7.9	1 50 43.4	3.76	0.2190737	0.1770060	0.1825612
11	136 19 37.6	26 27.85	+ 4.6	+1 50 55.3	+ 2.18	0.2195125	0.1880186	0.1933798
15	138 5 23.2	26 24.94	+ 1.3	1 51 0.8	+ 0.60	0.2199110	0.1986464	0.2038209
19	139 50 57.7	26 22.34	− 2.1	1 51 0.1	− 0.96	0.2202686	0.2089044	0.2138094
23	141 36 22.3	26 20.03	5.3	1 50 53.1	2.54	0.2205856	0.2188074	0.2236294
27	143 21 38.3	26 18.02	8.6	1 50 39.8	4.09	0.2208616	0.2283662	0.2330186
May 1	145 6 46.9	26 16.30	−11.8	+1 50 20.4	− 5.63	0.2210965	0.2375872	0.2420724
5	146 51 49.1	26 14.85	15.0	1 49 54.8	7.16	0.2212901	0.2464750	0.2507953
9	148 36 46.1	26 13.74	18.1	1 49 23.1	8.68	0.2214425	0.2550351	0.2591948
13	150 21 39.4	26 12.94	21.2	1 48 45.4	10.21	0.2215536	0.2632768	0.2672818
17	152 6 30.0	26 12.40	24.2	1 48 1.4	11.74	0.2216232	0.2712121	0.2750692
21	153 51 19.0	26 12.19	− 27.0	+1 47 11.5	− 13.21	0.2216515	0.2788543	0.2825680
25	155 36 7.9	26 12.25	29.9	1 46 15.7	14.70	0.2216384	0.2862119	0.2897858
29	157 20 57.5	26 12.60	32.6	1 45 13.9	16.19	0.2215837	0.2932905	0.2967262
June 2	159 5 49.2	26 13.26	35.1	1 44 6.2	17.65	0.2214875	0.3000137	0.3033928
6	160 50 44.0	26 14.22	37.5	1 42 52.7	19.10	0.2213501	0.3066244	0.3097899
10	162 35 43.4	26 15.51	− 39.8	+1 41 33.4	− 20.55	0.2211715	0.3128900	0.3159261
14	164 20 48.5	26 17.07	42.0	1 40 8.3	21.99	0.2209516	0.3185894	0.3218112
18	166 6 0.4	26 18.94	44.0	1 38 37.5	23.40	0.2206906	0.3240627	0.3274546
22	167 51 20.4	26 21.11	45.9	1 37 1.1	24.81	0.2203886	0.3301878	0.3328023
26	169 36 49.7	26 23.55	47.5	1 35 19.0	26.21	0.2200456	0.3354780	0.3380366
30	171 22 29.2	26 26.29	48.9	+1 33 31.4	27.59	0.2196619	0.3405370	0.3429798
July 4	173 8 20.4	26 29.34	50.2	+1 31 38.3	28.96	0.2192378	0.3453053	0.3476944

MARS.

GREENWICH MEAN NOON

Date		Heliocentric Longitude Mean Equinox of Date	Daily Motion	Reduction to Orbit	Heliocentric Latitude	Daily Motion	Logarithm of Radius Vector	Logarithm of Distance from Earth: At Date	Logarithm of Distance from Earth: At [illegible] Date
		° ′ ″	′ ″	″	° ′ ″	″			
July	4	173 8 [illegible]	[illegible]	[illegible]	+1 31 [illegible]	[illegible]	0.2192375	[illegible]	[illegible]
	8	174 54 24.3	[illegible]	51.3	1 29 39.7	[illegible]	0.2187735	[illegible]	[illegible]
	12	176 40 42.3	[illegible]	52.3	1 27 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	16	178 27 15.5	[illegible]	53.0	1 25 [illegible]	[illegible]	0.2177246	[illegible]	[illegible]
	20	180 14 4.9	[illegible]	53.5	1 23 11.7	[illegible]	0.2171406	[illegible]	[illegible]
	24	182 1 12.0	[illegible]	−53.8	+1 20 51.9	[illegible]	0.2165175	[illegible]	[illegible]
	28	183 48 38.1	[illegible]	53.9	1 18 20.9	[illegible]	0.2158554	[illegible]	[illegible]
Aug	1	185 36 24.1	[illegible]	53.8	1 15 [illegible]	[illegible]	0.2151548	[illegible]	[illegible]
	5	187 24 31.5	[illegible]	53.5	1 13 21.8	[illegible]	0.2144160	[illegible]	[illegible]
	9	189 13 1.5	[illegible]	53.0	1 10 41.9	[illegible]	[illegible]	0.3733350	[illegible]
	13	191 1 54.9	[illegible]	−52.2	+1 7 57.0	[illegible]	[illegible]	[illegible]	[illegible]
	17	192 51 11.3	[illegible]	51.2	1 5 7.5	[illegible]	[illegible]	[illegible]	[illegible]
	21	194 40 57.6	[illegible]	50.0	1 2 13.2	[illegible]	[illegible]	0.3871745	[illegible]
	25	196 31 9.4	[illegible]	48.6	0 59 14.6	[illegible]	0.2101640	[illegible]	[illegible]
	29	198 21 [illegible]	[illegible]	47.1	0 56 11.3	[illegible]	0.2092055	[illegible]	[illegible]
Sept	2	200 12 [illegible]	[illegible]	−45.3	+0 53 3.8	[illegible]	0.2082126	[illegible]	[illegible]
	6	202 4 [illegible]	[illegible]	43.3	0 49 52.2	[illegible]	0.2071858	[illegible]	[illegible]
	10	203 56 55.4	[illegible]	41.1	0 46 [illegible]	[illegible]	0.2061255	[illegible]	[illegible]
	14	205 49 [illegible]	[illegible]	38.7	0 43 16.4	[illegible]	[illegible]	[illegible]	[illegible]
	18	207 43 0.0	[illegible]	[illegible]	0 39 52.7	[illegible]	[illegible]	[illegible]	[illegible]
	22	209 36 [illegible]	[illegible]	−33.4	+0 36 25.4	[illegible]	0.2027525	[illegible]	[illegible]
	26	211 31 [illegible]	[illegible]	30.6	0 32 54.5	[illegible]	[illegible]	[illegible]	[illegible]
	30	213 [illegible]	[illegible]	27.5	0 29 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Oct	4	215 22 [illegible]	[illegible]	24.3	0 25 42.7	[illegible]	[illegible]	[illegible]	[illegible]
	8	[illegible] 18 [illegible]	[illegible]	21.0	0 22 2.2	[illegible]	[illegible]	[illegible]	[illegible]
	12	[illegible] 16 [illegible]	[illegible]	−17.5	+0 18 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	16	221 14 [illegible]	[illegible]	14.0	0 14 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	20	[illegible]	[illegible]	10.4	0 10 44.5	[illegible]	[illegible]	[illegible]	[illegible]
	24	[illegible]	[illegible]	6.7	0 6 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	28	[illegible]	[illegible]	−3.0	+0 3 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nov	1	[illegible]	[illegible]	+0.9	0 0 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible] 14 [illegible]	[illegible]	4.7	0 4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	9	[illegible]	[illegible]	[illegible]	0 8 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	13	[illegible]	[illegible]	[illegible]	0 12 43.7	[illegible]	[illegible]	[illegible]	[illegible]
	17	[illegible]	[illegible]	[illegible]	0 16 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	25	[illegible]	[illegible]	[illegible]	0 24 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	29	[illegible]	[illegible]	[illegible]	0 28 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dec	3	[illegible]	[illegible]	[illegible]	0 32 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	15	[illegible]	[illegible]	[illegible]	0 44 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

JUPITER.

GREENWICH MEAN NOON.

Date.	Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
	° ′ ″	′ ″	″	° ′ ″	″			
Jan. 1	151 9 28.7	4 38.76	+26.4	+1 1 44.1	+3.93	0.7313678	0.6822350	0.6798040
5	151 28 3.5	4 38.66	26.3	1 1 59.8	3.90	0.7314459	0.6774178	0.6750811
9	151 46 38.0	4 38.56	26.2	1 2 15.3	3.88	0.7315236	0.6727984	0.6705743
13	152 5 12.0	4 38.46	26.2	1 2 30.8	3.85	0.7316007	0.6684130	0.6663189
17	152 23 45.6	4 38.36	26.1	1 2 46.1	3.82	0.7316774	0.6642961	0.6623485
21	152 42 18.9	4 38.26	+26.0	+1 3 1.3	+3.79	0.7317535	0.6604805	0.6586964
25	153 0 51.8	4 38.17	25.9	1 3 16.4	3.76	0.7318292	0.6570004	0.6553965
29	153 19 24.3	4 38.08	25.8	1 3 31.4	3.73	0.7319043	0.6538888	0.6524814
Feb. 2	153 37 56.4	4 37.99	25.7	1 3 46.3	3.70	0.7319789	0.6511780	0.6499819
6	153 56 28.2	4 37.89	25.6	1 4 1.0	3.67	0.7320530	0.6488964	0.6479244
10	154 14 59.6	4 37.80	+25.5	+1 4 15.7	+3.64	0.7321266	0.6470677	0.6463286
14	154 33 30.6	4 37.71	25.4	1 4 30.2	3.62	0.7321997	0.6457084	0.6452090
18	154 52 1.2	4 37.62	25.3	1 4 44.6	3.59	0.7322723	0.6448310	0.6445757
22	155 10 31.5	4 37.53	25.2	1 4 58.9	3.56	0.7323444	0.6444434	0.6444352
26	155 29 1.4	4 37.44	25.1	1 5 13.1	3.53	0.7324161	0.6445507	0.6447904
Mar. 2	155 47 31.0	4 37.35	+25.0	+1 5 27.1	+3.50	0.7324872	0.6451530	0.6456380
6	156 6 0.2	4 37.25	24.9	1 5 41.1	3.47	0.7325578	0.6462434	0.6469680
10	156 24 29.0	4 37.16	24.8	1 5 54.9	3.44	0.7326279	0.6478089	0.6487636
14	156 42 57.4	4 37.07	24.6	1 6 8.6	3.41	0.7326974	0.6498291	0.6510030
18	157 1 25.5	4 36.99	24.5	1 6 22.2	3.38	0.7327665	0.6522816	0.6536615
22	157 19 53.3	4 36.90	+24.4	+1 6 35.6	+3.35	0.7328350	0.6551395	0.6567122
26	157 38 20.8	4 36.82	24.3	1 6 49.0	3.32	0.7329031	0.6583760	0.6601277
30	157 56 47.9	4 36.73	24.1	1 7 2.2	3.29	0.7329706	0.6619628	0.6638773
Apr. 3	158 15 14.6	4 36.65	24.0	1 7 15.3	3.26	0.7330375	0.6658669	0.6679272
7	158 33 41.0	4 36.56	23.9	1 7 28.3	3.23	0.7331040	0.6700537	0.6722419
11	158 52 7.1	4 36.48	+23.7	+1 7 41.1	+3.20	0.7331700	0.6744871	0.6767845
15	159 10 32.9	4 36.39	23.6	1 7 53.9	3.17	0.7332354	0.6791303	0.6815203
19	159 28 58.3	4 36.31	23.4	1 8 6.5	3.14	0.7333002	0.6839506	0.6864170
23	159 47 23.4	4 36.24	23.3	1 8 19.0	3.11	0.7333645	0.6889162	0.6914449
27	160 5 48.2	4 36.16	23.1	1 8 31.4	3.08	0.7334282	0.6939990	0.6965744
May 1	160 24 12.6	4 36.08	+23.0	+1 8 43.7	+3.05	0.7334914	0.6991674	0.7017744
5	160 42 36.8	4 36.00	22.8	1 8 55.8	3.02	0.7335540	0.7043920	0.7070166
9	161 1 0.7	4 35.92	22.7	1 9 7.8	2.99	0.7336161	0.7096449	0.7122733
13	161 19 24.2	4 35.85	22.5	1 9 19.7	2.96	0.7336776	0.7148995	0.7175205
17	161 37 47.4	4 35.77	22.3	1 9 31.5	2.93	0.7337385	0.7201340	0.7227374
21	161 56 10.3	4 35.69	+22.2	+1 9 43.2	+2.90	0.7337990	0.7253285	0.7279052
25	162 14 32.9	4 35.61	22.0	1 9 54.7	2.87	0.7338588	0.7304652	0.7330063
29	162 32 55.2	4 35.54	21.9	1 10 6.1	2.84	0.7339180	0.7355263	0.7380232
June 2	162 51 17.3	4 35.47	21.7	1 10 17.4	2.80	0.7339767	0.7404949	0.7429391
6	163 9 39.0	4 35.40	21.5	1 10 28.5	2.77	0.7340348	0.7453542	0.7477383
10	163 28 0.4	4 35.33	+21.3	+1 10 39.5	+2.74	0.7340923	0.7500903	0.7524087
14	163 46 21.6	4 35.25	21.1	1 10 50.5	2.71	0.7341493	0.7546925	0.7569404
18	164 4 42.5	4 35.18	21.0	1 11 1.2	2.68	0.7342057	0.7591514	0.7613246
22	164 23 3.1	4 35.11	20.8	1 11 11.9	2.65	0.7342616	0.7634588	0.7655530
26	164 41 23.4	4 35.04	20.6	1 11 22.4	2.62	0.7343168	0.7676060	0.7696165
30	164 59 43.4	4 34.97	+20.4	+1 11 32.8	+2.59	0.7343715	0.7715838	0.7735069
July 4	165 18 3.1	4 34.91	+20.2	+1 11 43.1	+2.56	0.7344257	0.7753848	0.7772163

SATURN.

GREENWICH MEAN NOON.

Date.		Heliocentric Longitude, Mean Equinox of Date.			Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.			Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
		°	′	″	′ ″	′ ″	°	′	″	″			
Jan.	1	233	15	40.9	1 51.07	−1 25.1	+2	8	48.4	−2.45	0.9974067	1.0261827	1.0252153
	5	233	23	5.2	1 51.06	1 25.3	2	8	38.6	2.46	0.9974402	1.0242148	1.0231823
	9	233	30	29.4	1 51.04	1 25.5	2	8	28.7	2.47	0.9974737	1.0221184	1.0210242
	13	233	37	53.5	1 51.03	1 25.7	2	8	18.8	2.48	0.9975071	1.0199006	1.0187490
	17	233	45	17.5	1 51.01	1 25.9	2	8	8.9	2.49	0.9975405	1.0175700	1.0163645
	21	233	52	41.5	1 50.99	−1 26.1	+2	7	59.0	−2.50	0.9975738	1.0151334	1.0138776
	25	234	0	5.4	1 50.98	1 26.3	2	7	49.0	2.51	0.9976071	1.0125983	1.0112966
	29	234	7	29.3	1 50.96	1 26.5	2	7	39.0	2.51	0.9976402	1.0099737	1.0086305
Feb.	2	234	14	53.1	1 50.94	1 26.7	2	7	29.0	2.52	0.9976733	1.0072686	1.0058895
	6	234	22	16.8	1 50.93	1 26.9	2	7	18.9	2.53	0.9977063	1.0044946	1.0030855
	10	234	29	40.5	1 50.91	−1 27.1	+2	7	8.8	−2.54	0.9977392	1.0016638	1.0002309
	14	234	37	4.1	1 50.90	1 27.3	2	6	58.6	2.55	0.9977720	0.9987881	0.9973371
	18	234	44	27.6	1 50.88	1 27.5	2	6	48.4	2.56	0.9978047	0.9958794	0.9944163
	22	234	51	51.1	1 50.86	1 27.7	2	6	38.2	2.57	0.9978372	0.9929495	0.9914807
	26	234	59	14.5	1 50.85	1 27.9	2	6	28.0	2.58	0.9978696	0.9900117	0.9885441
Mar.	2	235	6	37.8	1 50.83	−1 28.1	+2	6	17.7	−2.58	0.9979020	0.9870799	0.9856212
	6	235	14	1.1	1 50.82	1 28.3	2	6	7.4	2.59	0.9979343	0.9841697	0.9827274
	10	235	21	24.3	1 50.80	1 28.5	2	5	57.0	2.60	0.9979665	0.9812963	0.9798785
	14	235	28	47.4	1 50.78	1 28.6	2	5	46.6	2.60	0.9979986	0.9784757	0.9770898
	18	235	36	10.5	1 50.77	1 28.8	2	5	36.2	2.61	0.9980306	0.9757226	0.9743757
	22	235	43	33.5	1 50.75	−1 29.0	+2	5	25.8	−2.62	0.9980624	0.9730510	0.9717506
	26	235	50	56.5	1 50.73	1 29.2	2	5	15.3	2.63	0.9980943	0.9704762	0.9692300
	30	235	58	19.4	1 50.72	1 29.4	2	5	4.8	2.64	0.9981261	0.9680139	0.9668300
Apr.	3	236	5	42.2	1 50.70	1 29.5	2	4	54.2	2.64	0.9981578	0.9656799	0.9645658
	7	236	13	5.0	1 50.69	1 29.7	2	4	43.6	2.65	0.9981894	0.9634893	0.9624526
	11	236	20	27.7	1 50.67	−1 29.9	+2	4	33.0	−2.66	0.9982209	0.9614569	0.9605037
	15	236	27	50.3	1 50.66	1 30.0	2	4	22.4	2.67	0.9982522	0.9595944	0.9587309
	19	236	35	12.9	1 50.64	1 30.2	2	4	11.7	2.68	0.9982834	0.9579140	0.9571452
	23	236	42	35.4	1 50.63	1 30.3	2	4	1.0	2.69	0.9983145	0.9564258	0.9557575
	27	236	49	57.9	1 50.61	1 30.5	2	3	50.3	2.70	0.9983456	0.9551412	0.9545782
May	1	236	57	20.3	1 50.59	−1 30.7	+2	3	39.5	−2.71	0.9983766	0.9540695	0.9536162
	5	237	4	42.6	1 50.58	1 30.8	2	3	28.7	2.72	0.9984075	0.9532189	0.9528786
	9	237	12	4.9	1 50.56	1 31.0	2	3	17.8	2.72	0.9984383	0.9525955	0.9523698
	13	237	19	27.1	1 50.55	1 31.1	2	3	6.9	2.73	0.9984690	0.9522019	0.9520920
	17	237	26	49.2	1 50.53	1 31.3	2	2	56.0	2.74	0.9984996	0.9520402	0.9520465
	21	237	34	11.3	1 50.51	−1 31.4	+2	2	45.1	−2.75	0.9985301	0.9521108	0.9522332
	25	237	41	33.3	1 50.50	1 31.6	2	2	34.1	2.76	0.9985605	0.9524134	0.9526512
	29	237	48	55.3	1 50.48	1 31.7	2	2	23.1	2.76	0.9985908	0.9529462	0.9532982
June	2	237	56	17.2	1 50.47	1 31.8	2	2	12.1	2.77	0.9986210	0.9537062	0.9541694
	6	238	3	39.0	1 50.45	1 32.0	2	2	1.0	2.78	0.9986510	0.9546868	0.9552575
	10	238	11	0.8	1 50.44	−1 32.1	+2	1	49.9	−2.79	0.9986811	0.9558800	0.9565534
	14	238	18	22.5	1 50.42	1 32.3	2	1	38.8	2.80	0.9987111	0.9572764	0.9580476
	18	238	25	44.1	1 50.40	1 32.4	2	1	27.6	2.80	0.9987410	0.9586058	0.9597299
	22	238	33	5.7	1 50.39	1 32.5	2	1	16.4	2.81	0.9987708	0.9606383	0.9615897
	26	238	40	27.2	1 50.38	1 32.7	2	1	5.2	2.82	0.9988005	0.9625825	0.9636154
	30	238	47	48.7	1 50.36	−1 32.8	+2	0	53.9	−2.83	0.9988302	0.9646566	0.9657944
July	4	238	55	10.1	1 50.35	−1 32.9	+2	0	42.6	−2.84	0.9988599	0.9669360	0.9681120

SATURN.

GREENWICH MEAN NOON.

Date		Heliocentric Longitude, Mean Equinox of Date	Daily Motion	Reduction to Orbit	Heliocentric Latitude	Daily Motion	Logarithm of Radius Vector	Logarithm of Distance from Earth. At Date	At Intermediate Date
		° ′ ″	′ ″	′ ″	° ′ ″	″			
July	4	238 55 10.1	1 [illegible]	1 32.9	+2 0 42.6	−2.89	0.9988906	0.96[illegible]	0.9681130
	8	239 2 31.5	1 [illegible]	1 33.0	2 0 31.3	2.89	0.99[illegible]889	0.9693180	0.97[illegible]5530
	12	239 9 52.[illegible]	1 [illegible]	1 33.1	2 0 2[illegible]	2.89	0.99[illegible]181	0.9718152	0.9731029
	16	239 17 14.0	1 [illegible]	1 33.3	2 0 8.6	2.89	0.99[illegible]473	0.9744144	0.9757479
	20	239 24 35.2	1 [illegible]	1 33.4	1 59 57.2	2.88	0.99[illegible]	0.9771017	0.9[illegible]4742
	24	239 31 [illegible]	1 [illegible]	1 33.5	+1 59 45.7	−2.87	0.9990054	0.9798635	0.981[illegible]
	28	239 39 17.3	1 [illegible]	1 33.6	1 59 34.2	2.88	0.9990343	0.98[illegible]59	0.9841190
Aug.	1	239 46 3[illegible].3	1 [illegible]	1 33.7	1 59 22.7	2.88	0.9990631	0.9855557	0.9870001
	5	239 53 5[illegible].2	1 [illegible]	1 33.9	1 59 11.2	2.89	0.9990918	0.9884524	0.98[illegible]
	9	240 1 2[illegible].1	1 [illegible]	1 34.0	1 58 59.6	2.90	0.9991204	0.9913677	0.9928274
	13	240 8 40.9	1 [illegible]	−1 34.1	+1 58 48.0	−2.91	0.9991489	0.9942866	0.9957437
	17	240 16 1.7	1 [illegible]	1 34.2	1 58 3[illegible].4	2.91	0.9991773	0.9971974	0.998[illegible]
	21	240 23 22.4	1 [illegible]	1 34.3	1 58 24.7	2.92	0.9992055	1.0000857	1.0015234
	25	24[illegible] [illegible] 43.1	1 [illegible]	1 34.4	1 58 13.0	2.93	0.9992335	1.0029[illegible]	1.0043634
	29	24[illegible] 58 3.7	1 [illegible]	1 34.5	1 58 1.3	2.94	0.9992616	1.0057658	1.0071547
Sept.	2	240 45 24.2	1 [illegible]	1 34.6	+1 57 49.5	−2.95	0.999[illegible]896	1.0085286	1.009886[illegible]
	6	240 52 44.7	1 [illegible]	1 34.[illegible]	1 57 37.7	2.96	0.9993175	1.011[illegible]	1.0125[illegible]
	10	241 0 5.1	1 [illegible]	1 34.[illegible]	1 57 25.9	2.96	0.9993453	1.013[illegible]	1.0151311
	14	241 7 25.5	1 [illegible]	1 34.[illegible]	1 57 14.0	2.97	0.9993730	1.016[illegible]	1.0176280
	18	241 14 45.[illegible]	1 [illegible]	1 35.0	1 57 2.2	2.9[illegible]	0.9994006	1.018[illegible]416	1.0200307
	22	241 22 6.1	1 [illegible]	−1 35.1	+1 56 50.2	−2.98	0.999428[illegible]	1.0211943	1.0223312
	26	241 29 2[illegible].3	1 [illegible]	1 35.2	1 56 3[illegible].3	2.99	0.9994555	1.0234405	1.0245214
	30	241 36 46.4	1 [illegible]	1 35.3	1 56 2[illegible].4	2.99	0.99948[illegible]	1.0255729	1.026[illegible]
Oct.	4	241 44 6.5	1 [illegible]	1 35.4	1 56 14.4	3.00	0.9995102	1.0275[illegible]	1.02[illegible]5432
	8	241 51 2[illegible]	1 [illegible]	1 35.5	1 5[illegible] 2.3	3.01	0.9995374	1.029[illegible]	1.030[illegible]34
	12	241 58 4[illegible]	1 [illegible]	−1 35.6	+1 55 5[illegible].3	−3.02	0.9995644	1.0312238	1.0320[illegible]
	16	242 6 [illegible]	1 [illegible]	1 35.[illegible]	1 55 [illegible]	3.03	0.99[illegible]5913	1.0328418	1.033[illegible]
	20	242 13 2[illegible]	1 [illegible]	1 35.[illegible]	1 55 2[illegible]	3.03	0.99[illegible]6181	1.0343198	1.0350047
	24	242 2[illegible]	1 [illegible]	1 35.[illegible]	1 55 13.9	3.04	0.9996447	1.0356528	1.0362032
	28	242 2[illegible] 6.1	1 [illegible]	1 3[illegible]	1 55 1.7	3.05	0.9996713	1.0368358	1.0373701
Nov.	1	242 35 [illegible]	1 [illegible]	−1 3[illegible]	+1 54 4[illegible]	−3.06	0.9996978	1.0378658	1.038[illegible]
	5	242 42 4[illegible]	1 [illegible]	1 3[illegible]	1 54 3[illegible]	3.06	0.9997242	1.03[illegible]	1.0391180
	9	242 50 [illegible]	1 [illegible]	1 3[illegible]	1 54 2[illegible]	3.07	0.[illegible]	1.0[illegible]	1.039[illegible]
	13	242 5[illegible] 24.[illegible]	1 [illegible]	1 3[illegible]	1 54 1[illegible]	3.[illegible]	0.9997768	1.0400142	1.0402329
	17	243 4 44.1	1 [illegible]	1 3[illegible]	1 54 [illegible]	3.[illegible]	0.99[illegible]8029	1.0404111	1.0405[illegible]
	21	243 12 [illegible]	1 [illegible]	1 3[illegible]	+1 5[illegible]	3.09	0.99[illegible]	1.0[illegible]	1.04[illegible]
	25	243 1[illegible]	1 [illegible]	1 3[illegible]	1 5[illegible]	3.10	0.[illegible]	1.04[illegible]141	1.0[illegible]
	29	243 2[illegible] 42.4	1 [illegible]	1 3[illegible]	1 53 [illegible]	3.11	0.[illegible]	1.040[illegible]	1.0405[illegible]
Dec.	3	243 34 [illegible]	1 [illegible]	1 [illegible]	1 53 1[illegible]	3.11	0.[illegible]	1.040[illegible]	1.040[illegible]
	7	243 41 [illegible]	1 [illegible]	1 3[illegible]	1 5[illegible]	3.12	0.[illegible]	1.0[illegible]	1.0[illegible]10
	11	243 4[illegible]	1 [illegible]	1 [illegible]	+1 52 45.[illegible]	−3.13	0.[illegible]	1.0[illegible]	1.03[illegible]
	15	24[illegible]	1 [illegible]	1 [illegible]	1 52 [illegible]	3.14	0.[illegible]	1.0[illegible]	1.0381664
	19	244 3 1[illegible].4	1 [illegible]	1 [illegible]	1 52 [illegible]	3.15	1.[illegible]	1.03[illegible]	1.0[illegible]
	23	244 10 [illegible]	1 [illegible]	1 [illegible]	1 52 [illegible]	3.15	1.[illegible]	1.03[illegible]	1.03[illegible]45
	27	244 1[illegible]	1 [illegible]	1 3[illegible]	1 51 55.[illegible]	3.16	1.[illegible]	1.0354048	1.0347354
	31	244 2[illegible] 15.[illegible]	1 [illegible]	−1 3[illegible]	+1 51 4[illegible]	−3.1[illegible]	1.[illegible]	1.0[illegible]	1.0332861
	35	244 [illegible] 34.4	1 [illegible]	−1 3[illegible]	+1 51 [illegible]	−3.1[illegible]	1.000[illegible]	1.031[illegible]	

URANUS.

GREENWICH MEAN NOON.

Date.		Heliocentric Longitude, Mean Equinox of Date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth— At Date.	Logarithm of Distance from Earth— At Intermediate Date.
		° ′ ″	″	″	° ′ ″	″			
Jan.	1	235 21 31.7	44.15	−5.5	+0 14 28.4	−0.56	1.2740325	1.2898097	1.2887183
	9	235 27 24.9	44.14	5.5	0 14 23.9	0.56	1.2740651	1.2875544	1.2863238
	17	235 33 18.0	44.13	5.5	0 14 19.4	0.56	1.2740977	1.2850308	1.2836814
	25	235 39 11.1	44.13	5.5	0 14 14.9	0.56	1.2741303	1.2822807	1.2808342
Feb.	2	235 45 4.1	44.12	5.4	0 14 10.4	0.57	1.2741629	1.2793484	1.2778302
	10	235 50 57.1	44.12	−5.4	+0 14 5.9	−0.57	1.2741956	1.2762871	1.2747261
	18	235 56 50.0	44.11	5.4	0 14 1.3	0.57	1.2742283	1.2731544	1.2715794
	26	236 2 42.9	44.10	5.3	0 13 56.8	0.57	1.2742609	1.2700078	1.2684480
Mar.	6	236 8 35.7	44.10	5.3	0 13 52.3	0.57	1.2742936	1.2669080	1.2653961
	14	236 14 28.5	44.09	5.3	0 13 47.7	0.57	1.2743264	1.2639201	1.2624874
	22	236 20 21.2	44.09	−5.3	+0 13 43.2	−0.57	1.2743591	1.2611056	1.2597811
	30	236 26 13.9	44.08	5.2	0 13 38.7	0.57	1.2743919	1.2585215	1.2573345
Apr.	7	236 32 6.5	44.07	5.2	0 13 34.1	0.57	1.2744247	1.2562265	1.2552042
	15	236 37 59.1	44.07	5.2	0 13 29.6	0.57	1.2744575	1.2542726	1.2534365
	23	236 43 51.7	44.06	5.2	0 13 25.1	0.57	1.2744903	1.2527004	1.2520688
May	1	236 49 44.2	44.06	−5.1	+0 13 20.5	−0.57	1.2745231	1.2515456	1.2511342
	9	236 55 36.6	44.05	5.1	0 13 16.0	0.57	1.2745560	1.2508367	1.2506543
	17	237 1 29.1	44.05	5.1	0 13 11.4	0.57	1.2745889	1.2505873	1.2506358
	25	237 7 21.4	44.04	5.0	0 13 6.9	0.57	1.2746218	1.2507996	1.2510782
June	2	237 13 13.7	44.03	5.0	0 13 2.3	0.57	1.2746547	1.2514699	1.2519726
	10	237 19 6.0	44.03	−5.0	+0 12 57.8	−0.57	1.2746877	1.2525823	1.2532950
	18	237 24 58.2	44.02	5.0	0 12 53.2	0.57	1.2747206	1.2541064	1.2550125
	26	237 30 50.4	44.02	4.9	0 12 48.7	0.57	1.2747536	1.2560083	1.2570892
July	4	237 36 42.5	44.01	4.9	0 12 44.1	0.57	1.2747866	1.2582479	1.2594785
	12	237 42 34.6	44.00	4.9	0 12 39.5	0.57	1.2748196	1.2607740	1.2621278
	20	237 48 26.7	44.00	−4.9	+0 12 35.0	−0.57	1.2748526	1.2635331	1.2649837
	28	237 54 18.7	43.99	4.8	0 12 30.4	0.57	1.2748856	1.2664722	1.2679914
Aug.	5	238 0 10.6	43.99	4.8	0 12 25.9	0.57	1.2749187	1.2695336	1.2710912
	13	238 6 2.5	43.98	4.8	0 12 21.3	0.57	1.2749518	1.2726572	1.2742249
	21	238 11 54.3	43.98	4.8	0 12 16.7	0.57	1.2749848	1.2757882	1.2773401
	29	238 17 46.1	43.97	−4.7	+0 12 12.2	−0.57	1.2750179	1.2788737	1.2803820
Sept.	6	238 23 37.9	43.96	4.7	0 12 7.6	0.57	1.2750510	1.2818586	1.2832976
	14	238 29 29.6	43.96	4.7	0 12 3.0	0.57	1.2750842	1.2846938	1.2860416
	22	238 35 21.3	43.95	4.7	0 11 58.5	0.57	1.2751173	1.2873363	1.2885719
	30	238 41 12.9	43.95	4.6	0 11 53.9	0.57	1.2751505	1.2897436	1.2908464
Oct	8	238 47 4.5	43.94	−4.6	+0 11 49.3	−0.57	1.2751836	1.2918765	1.2928305
	16	238 52 56.0	43.93	4.6	0 11 44.7	0.57	1.2752168	1.2937053	1.2944969
	24	238 58 47.4	43.93	4.6	0 11 40.1	0.57	1.2752500	1.2952023	1.2958183
Nov.	1	239 4 38.9	43.92	4.5	0 11 35.6	0.57	1.2752832	1.2963426	1.2967732
	9	239 10 30.2	43.92	4.5	0 11 31.0	0.57	1.2753164	1.2971091	1.2973490
	17	239 16 21.6	43.91	−4.5	+0 11 26.4	0.57	1.2753496	1.2974919	1.2975365
	25	239 22 12.9	43.90	4.4	0 11 21.8	0.57	1.2753829	1.2974824	1.2973291
Dec	3	239 28 4.1	43.90	4.4	0 11 17.3	0.57	1.2754161	1.2970777	1.2967294
	11	239 33 55.3	43.89	4.4	0 11 12.7	0.57	1.2754494	1.2962853	1.2957468
	19	239 39 46.4	43.89	4.3	0 11 8.1	0.57	1.2754826	1.2951156	1.2943932
	27	239 45 37.5	43.88	−4.3	+0 11 3.5	0.57	1.2755158	1.2935825	1.2926867
	35	239 51 28.5	43.88	−4.3	+0 10 58.0	0.57	1.2755491	1.2917008	

NEPTUNE

GREENWICH MEAN NOON.

Date		Heliocentric Longitude. Mean Equinox of date.	Daily Motion.	Reduction to Orbit.	Heliocentric Latitude.	Daily Motion.	Logarithm of Radius Vector.	Logarithm of Distance from Earth. At Date.	At Intermediate Date.
		° ′ ″	″	″	° ′ ″	″			
Jan.	1	79 1 27.3	21.6	−4.4	−1 23 42.5	+0.68	1.4750828	1.4616341	1.4621393
	9	79 4 21.2	21.6	4.4	1 23 [illegible]	0.68	1.4750839	1.4626477	1.4632204
	17	79 7 [illegible]	21.6	4.5	1 23 35.7	0.68	1.4750849	1.4638543	1.4645400
	25	79 10 14.2	21.6	4.5	1 23 32.3	0.68	1.47508[illegible]	1.4652794	1.46[illegible]
Feb.	2	79 13 10.7	21.6	4.5	1 23 29.2	0.68	1.4750[illegible]	1.4668375	1.4677672
	10	79 16 6.5	21.6	4.5	1 23 25.6	+0.68	1.4750870	1.4686705	1.46[illegible]024
	18	79 19 2.3	21.6	4.5	1 23 22.2	0.68	1.4750880	1.4705582	1.4715330
	26	79 21 58.2	21.6	4.5	1 23 18.8	0.68	1.4750900	1.4725220	1.4735204
Mar.	6	79 24 54.0	21.6	4.6	1 23 15.4	0.43	1.4750910	1.4745231	1.4755249
	14	79 27 [illegible]	21.6	4.6	1 23 12.0	0.43	1.4750920	1.4765211	1.4775[illegible]
	22	79 30 45.6	21.5	4.6	−1 23 8.6	+0.43	1.4750931	1.4784774	1.47[illegible]301
	30	79 33 41.4	21.5	4.6	1 23 5.1	0.43	1.4750941	1.48[illegible]	1.4812622
Apr.	7	79 36 37.2	21.5	4.6	1 23 1.7	0.43	1.4750951	1.4821336	1.4829[illegible]
	15	79 [illegible]	21.5	4.6	1 22 58.3	0.43	1.4750962	1.4837686	1.4845261
	23	79 42 28.9	21.5	4.7	1 22 54.9	0.43	1.4750972	1.4852401	1.4859078
May	1	79 45 24.5	21.5	−4.7	−1 22 51.5	+0.43	1.4750982	1.4865266	1.48[illegible]
	9	79 48 [illegible]	21.5	4.7	1 22 48.1	0.43	1.4750993	1.4876067	1.48[illegible]
	17	79 51 16.1	21.5	4.7	1 22 44.6	0.43	1.4751003	1.4884661	1.48[illegible]
	25	79 54 11.8	21.5	4.7	1 22 41.2	0.43	1.4751013	1.4890943	1.489[illegible]
June	2	79 57 7.6	21.5	4.7	1 22 37.8	0.43	1.4751024	1.4894822	1.489[illegible]
	10	80 0 3.3	21.5	4.8	−1 22 34.3	+0.43	1.4751034	1.48[illegible]	1.48[illegible]
	18	80 2 [illegible]	21.5	4.8	1 22 [illegible]	0.43	1.4751044	1.4895195	1.48[illegible]
	26	80 5 54.8	21.5	4.8	1 22 27.4	0.43	1.4751055	1.4891717	1.48[illegible]
July	4	80 8 [illegible]	21.5	4.8	1 22 24.0	0.43	1.4751065	1.48[illegible]	1.48[illegible]
	12	80 11 4[illegible]	21.5	4.8	1 22 [illegible]	0.43	1.4751075	1.48[illegible]	1.48[illegible]
	20	80 14 4[illegible]	21.5	4.8	−1 22 17.1	+0.43	1.4751086	1.48[illegible]	1.48[illegible]
	28	80 1[illegible]	21.5	4.8	1 22 13.6	0.43	1.4751096	1.48[illegible]	1.48[illegible]
Aug.	5	80 [illegible]	21.5	4.8	1 22 [illegible]	0.43	1.4751107	1.48[illegible]	1.48[illegible]
	13	80 [illegible]	21.5	4.8	1 22 6.[illegible]	0.43	1.4751117	1.4824744	1.4816[illegible]
	21	80 [illegible]	21.5	4.9	1 22 3.2	0.43	1.4751128	1.48[illegible]	1.47[illegible]
	29	80 [illegible]	21.5	4.9	−1 21 [illegible]	+0.43	1.4751138	1.47[illegible]	1.47[illegible]
Sept.	6	80 [illegible]	21.5	4.9	1 21 [illegible]	0.44	1.4751149	1.47[illegible]	1.47[illegible]
	14	80 [illegible]	21.5	4.9	1 21 [illegible]	0.44	1.4751160	1.47[illegible]	1.47[illegible]
	22	80 [illegible]	21.5	4.9	1 21 4[illegible]	0.44	1.4751170	1.47[illegible]	1.47[illegible]
	30	80 41 [illegible]	21.5	4.9	1 21 4[illegible]	0.44	1.4751181	1.47[illegible]	1.47[illegible]416
Oct.	8	80 4[illegible]	21.5	4.9	1 21 [illegible]	+0.44	1.47511[illegible]	1.4[illegible]	1.46[illegible]
	16	80 4[illegible]	21.5	4.9	1 21 [illegible]	0.44	1.4751203	1.4[illegible]	1.46[illegible]
	24	80 4[illegible]	21.5	4.9	1 21 [illegible]	0.44	1.4751213	1.4[illegible]	1.4640119
Nov.	1	80 5[illegible]	21.5	4.9	1 21 [illegible]	0.44	1.4751224	1.4[illegible]	1.46[illegible]
	9	80 5[illegible]	21.5	5.0	1 21 [illegible]	0.44	1.4751235	1.4[illegible]	1.46[illegible]017
	17	80 5[illegible]	21.5	5.0	1 21 2[illegible]	+0.44	1.47512[illegible]	1.4[illegible]	1.46[illegible]
	25	81 1 [illegible]	21.5	5.1	1 21 2[illegible]	0.44	1.47512[illegible]	1.4[illegible]	1.46[illegible]
Dec.	3	81 4 [illegible]	21.5	5.1	1 21 [illegible]	0.44	1.47512[illegible]	1.4[illegible]	1.46[illegible]
	11	81 [illegible]	21.5	5.1	1 21 [illegible]	0.44	1.47512[illegible]	1.4[illegible]	1.46[illegible]
	19	81 [illegible]	21.5	5.1	1 21 [illegible]	0.44	1.47512[illegible]	1.4[illegible]	1.46[illegible]
	27	81 1[illegible]	21.5	5.1	−1 21 [illegible]	+0.44	1.47[illegible]	1.4[illegible]	1.46[illegible]
	35	81 1[illegible] 11.1	21.[illegible]	5.1	−1 21 [illegible]	+0.44	1.4751[illegible]	1.4[illegible]	

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Jan. 1	+0.1944887	+0.2030586	−571	−0.8842151	−0.8825947	−223	−0.3836339	−0.3829307	+224
2	0.2116127	0.2201507	578	0.8809052	0.8791468	234	0.3821975	0.3814343	218
3	0.2286715	0.2371743	584	0.8773197	0.8754240	245	0.3806413	0.3798185	212
4	0.2456584	0.2541232	590	0.8734597	0.8714270	256	0.3789660	0.3780838	206
5	0.2625680	0.2709921	596	0.8693262	0.8671576	267	0.3771720	0.3762307	200
6	+0.2793948	+0.2877757	−601	−0.8649214	−0.8626176	−278	−0.3752601	−0.3742603	+194
7	0.2961339	0.3044684	606	0.8602464	0.8578081	290	0.3732313	0.3721731	187
8	0.3127788	0.3210645	611	0.8553029	0.8527311	302	0.3710858	0.3699697	180
9	0.3293248	0.3375590	616	0.8500929	0.8473884	314	0.3688249	0.3676513	173
10	0.3457666	0.3539471	620	0.8446181	0.8417824	326	0.3664492	0.3652186	166
11	+0.3620996	+0.3702234	−623	−0.8388813	−0.8359150	−338	−0.3639598	−0.3626728	+159
12	0.3783181	0.3863833	626	0.8328839	0.8297883	351	0.3613577	0.3600147	152
13	0.3944182	0.4024219	629	0.8266285	0.8234049	363	0.3586438	0.3572452	145
14	0.4103940	0.4183343	632	0.8201175	0.8167665	376	0.3558190	0.3543653	138
15	0.4262420	0.4341163	634	0.8133523	0.8098753	389	0.3528842	0.3513759	130
16	+0.4419569	+0.4497633	−636	−0.8063358	−0.8027342	−402	−0.3498405	−0.3482782	+122
17	0.4575349	0.4652710	638	0.7990706	0.7953452	415	0.3466891	0.3450731	114
18	0.4729711	0.4806347	640	0.7915583	0.7877103	428	0.3434304	0.3417612	106
19	0.4882613	0.4958501	641	0.7838014	0.7798318	441	0.3400657	0.3383438	98
20	0.5034008	0.5109128	642	0.7758020	0.7717124	454	0.3365958	0.3348218	89
21	+0.5183855	+0.5258184	−642	−0.7675631	0.7633542	−467	−0.3330219	−0.3311961	+ 81
22	0.5332109	0.5405624	641	0.7590861	0.7547593	480	0.3293446	0.3274676	73
23	0.5478724	0.5551404	640	0.7503740	0.7459305	494	0.3255653	0.3236377	64
24	0.5623658	0.5695478	639	0.7414290	0.7368699	508	0.3216849	0.3197069	55
25	0.5766861	0.5837802	637	0.7322535	0.7275802	522	0.3177041	0.3156766	46
26	+0.5908295	+0.5978331	−635	−0.7228504	−0.7180645	−536	−0.3136246	−0.3115481	+ 37
27	0.6047907	0.6117018	632	0.7132227	0.7083253	550	0.3094473	0.3073225	28
28	0.6185658	0.6253819	629	0.7033727	0.6983652	564	0.3051737	0.3030010	19
29	0.6321497	0.6388687	626	0.6933034	0.6881876	577	0.3008046	0.2985849	10
30	0.6455382	0.6521578	623	0.6830184	0.6777958	590	0.2963419	0.2940757	+ 1
31	+0.6587268	+0.6652448	−618	−0.6725204	−0.6671928	−603	−0.2917866	−0.2894748	− 8
Feb. 1	0.6717112	0.6781255	613	0.6618133	0.6563825	616	0.2871405	0.2847839	18
2	0.6844871	0.6907957	608	0.6509008	0.6453686	630	0.2824052	0.2800046	27
3	0.6970506	0.7032514	603	0.6397863	0.6341543	643	0.2775823	0.2751385	36
4	0.7093974	0.7154881	598	0.6284732	0.6227433	656	0.2726734	0.2701872	46
5	+0.7215233	+0.7275026	−592	−0.6169654	0.6111401	−669	−0.2676801	−0.2651525	− 56
6	0.7334255	0.7392914	586	0.6052678	0.5993488	682	0.2626045	0.2600363	65
7	0.7451000	0.7508508	579	0.5933838	0.5873732	695	0.2574481	0.2548403	75
8	0.7565435	0.7621775	572	0.5813176	0.5752174	708	0.2522129	0.2495662	85
9	0.7677526	0.7732684	564	0.5690732	0.5628853	720	0.2469004	0.2442158	95
10	+0.7787245	+0.7841205	−555	−0.5566545	−0.5503814	−732	−0.2415126	−0.2387910	−105
11	0.7894560	0.7947307	546	0.5440663	0.5377097	744	0.2360512	0.2332935	115
12	0.7999443	0.8050065	537	0.5313122	0.5248743	756	0.2305181	0.2277252	125
13	0.8101869	0.8152151	527	0.5183965	0.5118792	768	0.2249150	0.2220876	134
14	0.8201809	0.8250841	517	0.5053229	0.4987281	780	0.2192433	0.2163823	144
15	+0.8299243	+0.8347010	−507	−0.4920953	−0.4854253	−792	−0.2135051	0.2106116	−154
16	+0.8394140	+0.8440632	−497	−0.4787183	−0.4719748	−803	−0.2077020	−0.2047766	−164

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox. Noon.	X True Equinox. Midnight.	Reduc. to Mean Equi. of Jan. 0 Noon.	Y True Equinox. Noon.	Y True Equinox. Midnight.	Reduc. to Mean Equi. of Jan. 0 Noon.	Z True Equinox. Noon.	Z True Equinox. Midnight.	Reduc. to Mean Equi. of Jan. 0 Noon.
Feb 16	+0.8[illegible]	+0.84[illegible]	−4[illegible]	0.47[illegible]	0.47[illegible]	−803	−0.20[illegible]	−0.20[illegible]	164
17	0.8[illegible]	0.85[illegible]	4[illegible]	0.4[illegible]	0.45[illegible]	814	0.2018[illegible]	0.1[illegible]	173
18	0.8576233	0.8620133	475	0.4515907	0.44[illegible]	825	0.199[illegible]	0.1929208	1[illegible]
19	0.866[illegible]378	0.870[illegible]	464	0.4377277	0.43[illegible]	8[illegible]	0.1[illegible]	0.18[illegible]	[illegible]
20	0.87[illegible]	0.87[illegible]54	452	0.423[illegible]14	0.41[illegible]740	846	0.1[illegible]	0.18[illegible]	[illegible]
21	+0.8820748	+0.8[illegible]70	−439	0.40[illegible]7247	−0.40[illegible]	−856	0.1777705	−0.174[illegible]	211
22	0.89[illegible]918	0.8947491	4[illegible]	0.[illegible]	0.3[illegible]	866	0.1716133	0.16[illegible]	221
23	0.8[illegible]	0.9022[illegible]	413	0.3[illegible]	0.374017[illegible]	876	0.1654029	0.1622784	231
24	0.9[illegible]	0.9[illegible]4055	400	0.3[illegible]7975	0.35[illegible]	886	0.1591424	0.15[illegible]	241
25	0.91[illegible]	0.91[illegible]	387	0.3522432	0.3440[illegible]	895	0.1528[illegible]	0.14[illegible]375	250
26	+0.91[illegible]	+0.9231351	−373	−0.33[illegible]	−0.33[illegible]240	−904	−0.1464727	−0.1432766	−2[illegible]
27	0.92[illegible]	0.9291344	359	0.32[illegible]325	0.3154162	913	0.14[illegible]	0.1[illegible]8513	2[illegible]
28	0.93[illegible]	0.93[illegible]	344	0.3[illegible]	0.3[illegible]	922	0.1336227	0.130[illegible]	2[illegible]
Mar 1	0.93[illegible]019	0.9414[illegible]	329	0.2[illegible]	0.2855138	930	0.1271349	0.12[illegible]	288
2	0.9443[illegible]	0.9470[illegible]	314	0.2[illegible]	0.27[illegible]	938	0.12[illegible]	0.117[illegible]	298
3	+0.9[illegible]	+0.95[illegible]	[illegible]	−0.2[illegible]	−0.255[illegible]10	−946	−0.1140442	−0.1107402	−30[illegible]
4	0.9547[illegible]	0.95[illegible]	2[illegible]	0.24[illegible]	0.24[illegible]	953	0.10[illegible]4458	0.1041348	316
5	0.9596182	0.9[illegible]	[illegible]	0.23[illegible]	0.22[illegible]	9[illegible]	0.10[illegible]8148	0.0[illegible]	325
6	0.9[illegible]41451	0.96[illegible]	2[illegible]	0.2[illegible]	0.2[illegible]	9[illegible]	0.0[illegible]41535	0.0[illegible]8120	334
7	0.9[illegible]	0.97[illegible]	234	0.2[illegible]	0.1[illegible]	974	0.0[illegible]	0.0[illegible]41093	343
8	+0.9723193	+0.9741789	21[illegible]	−0.186[illegible]	0.17[illegible]	−9[illegible]	0.0[illegible]7456	−0.0[illegible]818	−352
9	0.97[illegible]	0.97[illegible]	[illegible]	0.17[illegible]	0.16[illegible]	9[illegible]	0.0[illegible]	0.0[illegible]315	360
10	0.97[illegible]	0.9[illegible]87	18[illegible]	0.15[illegible]	0.147[illegible]	932	0.0[illegible]72485	0.0[illegible]	3[illegible]
11	0.9[illegible]	0.9837847	16[illegible]	0.1[illegible]	0.1[illegible]	9[illegible]	0.0[illegible]	0.0570711	37[illegible]
12	0.9[illegible]	0.98[illegible]	14[illegible]	0.1[illegible]	0.1[illegible]	1003	0.0[illegible]	0.050[illegible]	3[illegible]
13	+0.9[illegible]	+0.98[illegible]	−1[illegible]	−0.1[illegible]	−0.1[illegible]	−10[illegible]	−0.04[illegible]	−0.0434453	−39[illegible]
14	0.9[illegible]	0.9[illegible]249	111	0.1[illegible]	0.0[illegible]	1012	0.04[illegible]	0.0[illegible]	4[illegible]
15	0.9[illegible]	0.9[illegible]4454	91	0.0[illegible]	0.0[illegible]	1016	0.0331[illegible]	0.0[illegible]	412
16	0.99[illegible]	0.9[illegible]	74	0.0[illegible]	0.0[illegible]	1020	0.02[illegible]444	0.0229175	4[illegible]
17	0.99[illegible]	0.9[illegible]	55	0.0[illegible]	0.0[illegible]	1024	0.0194[illegible]	0.01[illegible]590	428
18	+0.99[illegible]	+0.99[illegible]	−[illegible]	[illegible]	0.0[illegible]	102[illegible]	−0.01[illegible]	−0.00[illegible]1956	−43[illegible]
19	0.99[illegible]	0.99[illegible]	−1[illegible]	[illegible]	[illegible]	1031	−0.00[illegible]	−0.0[illegible]23295	444
20	0.99[illegible]	0.99[illegible]	+[illegible]	+0.0[illegible]	+0.0[illegible]	1034	+0.0011040	+0.0045377	451
21	0.99[illegible]	0.99[illegible]	21	0.0[illegible]	0.0[illegible]	103[illegible]	0.0079712	0.0114042	45[illegible]
22	0.99[illegible]	0.99[illegible]	41	0.0[illegible]	0.0[illegible]	103[illegible]	0.0148[illegible]	0.01[illegible]	465
23	+0.99[illegible]	+0.99[illegible]	+6[illegible]	+0.0[illegible]	+0.0[illegible]	1040	+0.02[illegible]	+0.0251[illegible]	−472
24	0.99[illegible]	0.99[illegible]	[illegible]	0.0[illegible]	0.0[illegible]	1041	0.0[illegible]	0.0319784	479
25	0.99[illegible]14	0.99[illegible]	1[illegible]	0.0[illegible]	0.0[illegible]	1042	0.0354013	0.0[illegible]8216	4[illegible]
26	0.99[illegible]	0.99[illegible]	12[illegible]	0.0[illegible]	0.0[illegible]	1043	0.04[illegible]	0.04[illegible]541	493
27	0.99[illegible]	0.99[illegible]	14[illegible]	0.1[illegible]	0.1[illegible]	1044	0.0[illegible]	0.0524735	4[illegible]
28	+0.9[illegible]	+0.9[illegible]	+1[illegible]	+0.1[illegible]	+0.1[illegible]	1044	+0.0[illegible]	+0.0[illegible]	5[illegible]
29	0.9[illegible]	0.9[illegible]	1[illegible]	0.1444[illegible]	0.1[illegible]	1044	0.0[illegible]	0.0[illegible]	511
30	0.9[illegible]	0.9[illegible]	2[illegible]	0.1[illegible]	0.1[illegible]	[illegible]	0.0[illegible]4318	0.0[illegible]	51[illegible]
31	0.9[illegible]	0.9[illegible]	2[illegible]	0.1[illegible]	0.1[illegible]	1043	0.0[illegible]	0.0[illegible]	52[illegible]
32	0.9[illegible]	0.9[illegible]	24[illegible]	0.1[illegible]	0.1[illegible]	104[illegible]	0.0[illegible]9442	0.0[illegible]	52[illegible]
33	+0.9[illegible]	+0.9[illegible]	+271	+0.2[illegible]	+0.2[illegible]	1041	+0.0[illegible]	+0.0[illegible]	−531
34	+0.9[illegible]	+0.9[illegible]	+2[illegible]	+0.2[illegible]	+0.2[illegible]	−10[illegible]	+0.0[illegible]	+0.0[illegible]	−53[illegible]

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox. Noon.	X True Equinox. Midnight.	Reduc. to Mean Eq'x of Jan. 0. Noon.	Y True Equinox. Noon.	Y True Equinox. Midnight.	Reduc. to Mean Eq'x of Jan. 0. Noon.	Z True Equinox. Noon.	Z True Equinox. Midnight.	Reduc. to Mean Eq'x of Jan. 0. Noon.
Apr. 1	+0.9780695	+0.9763820	+ 249	+0.1911714	+0.1989115	- 1042	+0.0829442	+0.0863026	-528
2	0.9746218	0.9727890	271	0.2066368	0.2143467	1041	0.0896545	0.0929997	533
3	0.9708839	0.9689069	292	0.2220407	0.2297180	1040	0.0963380	0.0996690	538
4	0.9668580	0.9647375	314	0.2373782	0.2450207	1038	0.1029926	0.1063084	543
5	0.9625456	0.9602828	335	0.2526448	0.2602500	1036	0.1096161	0.1129156	548
6	+0.9579489	+0.9555439	+ 357	+0.2678358	+0.2754014	-1034	+0.1162067	+0.1194890	-552
7	0.9530683	0.9505228	378	0.2829464	0.2904701	1032	0.1227623	0.1260263	557
8	0.9479074	0.9452224	400	0.2979721	0.3054520	1029	0.1292809	0.1325259	561
9	0.9424680	0.9396442	422	0.3129091	0.3203424	1026	0.1357610	0.1389857	565
10	0.9367515	0.9337904	444	0.3277519	0.3351374	1022	0.1422000	0.1454040	569
11	+0.9307611	+0.9276639	+ 466	+0.3424980	+0.3498332	-1018	+0.1485972	+0.1517793	-572
12	0.9244989	0.9212664	488	0.3571424	0.3644251	1014	0.1549502	0.1581096	575
13	0.9179668	0.9146003	510	0.3716810	0.3789096	1009	0.1612573	0.1643932	578
14	0.9111673	0.9076681	533	0.3861105	0.3932830	1004	0.1675171	0.1706288	581
15	0.9041029	0.9004721	555	0.4004268	0.4075413	999	0.1737280	0.1768145	584
16	+0.8967758	+0.8930143	+ 578	+0.4146261	+0.4216808	- 994	+0.1798881	+0.1829488	-586
17	0.8891880	0.8852972	600	0.4287049	0.4356978	988	0.1859963	0.1890302	588
18	0.8813422	0.8773232	623	0.4426592	0.4495886	982	0.1920505	0.1950569	590
19	0.8732404	0.8690941	645	0.4564854	0.4633493	976	0.1980492	0.2010273	592
20	0.8648846	0.8606122	668	0.4701797	0.4769762	969	0.2039909	0.2069398	594
21	+0.8562773	+0.8518803	+ 690	+0.4837384	+0.4904658	- 962	+0.2098739	+0.2127930	-595
22	0.8474214	0.8429007	713	0.4971580	0.5038143	955	0.2156968	0.2185850	596
23	0.8383187	0.8336756	736	0.5104344	0.5170180	948	0.2214574	0.2243141	597
24	0.8289717	0.8242075	759	0.5235643	0.5300727	940	0.2271546	0.2299787	597
25	0.8193832	0.8144992	782	0.5365429	0.5429746	932	0.2327862	0.2355770	598
26	+0.8095558	+0.8045533	+ 805	+0.5493672	+0.5557201	- 923	+0.2383509	+0.2411074	-598
27	0.7994922	0.7943728	827	0.5620328	0.5683048	914	0.2438465	0.2465680	598
28	0.7891956	0.7839609	849	0.5745357	0.5807253	905	0.2492716	0.2519572	598
29	0.7786691	0.7733204	871	0.5868730	0.5929782	896	0.2546245	0.2572734	598
30	0.7679154	0.7624548	893	0.5990404	0.6050590	886	0.2599036	0.2625150	597
May 1	+0.7569388	+0.7513679	+ 915	+0.6110338	+0.6169642	- 876	+0.2651073	+0.2676803	-596
2	0.7457424	0.7400628	938	0.6228499	0.6286906	865	0.2702338	0.2727676	595
3	0.7343295	0.7285428	961	0.6344855	0.6402340	854	0.2752816	0.2777754	593
4	0.7227038	0.7168128	983	0.6459360	0.6515914	842	0.2802491	0.2827026	591
5	0.7108702	0.7048763	1005	0.6571996	0.6627601	830	0.2851355	0.2875477	589
6	+0.6988317	+0.6927370	+1027	+0.6682725	+0.6737364	- 818	+0.2899390	+0.2923093	-587
7	0.6865927	0.6803990	1049	0.6791516	0.6845176	806	0.2946583	0.2969859	585
8	0.6741566	0.6678656	1071	0.6898341	0.6951011	793	0.2992921	0.3015769	582
9	0.6615272	0.6551423	1093	0.7003179	0.7054837	780	0.3038399	0.3060807	579
10	0.6487109	0.6422328	1115	0.7105986	0.7156627	767	0.3082995	0.3104963	576
11	+0.6357090	+0.6291400	+1137	+0.7206755	+0.7256363	753	+0.3126708	+0.3148228	-572
12	0.6225263	0.6158684	1158	0.7305451	0.7354019	739	0.3169522	0.3190590	568
13	0.6091669	0.6024222	1180	0.7402[illegible]	0.7449570	724	0.3211431	0.3232042	564
14	0.5956347	0.5888050	1201	0.749[illegible]547	0.7542991	709	0.3252423	0.3272572	560
15	0.5819335	0.5750206	1222	0.7588[illegible]	0.7634263	694	0.3292489	0.3312172	556
16	+0.5680669	+0.5610730	+1243	+0.7679086	+0.7723364	- 678	+0.3331620	+0.3350831	-551
17	+0.5540390	+0.5469657	+1264	+0.7767093	+0.7810271	- 663	+0.3369804	+0.3388538	- 546

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox Noon.	X True Equinox Midnight.	Reduc. to Mean Eq. of Jan. 0 Noon.	Y True Equinox Noon.	Y True Equinox Midnight.	Reduc. to Mean Eq. of Jan. 0 Noon.	Z True Equinox Noon.	Z True Equinox Midnight.	Reduc. to Mean Eq. of Jan. 0 Noon.
May 17	+0.5540190	+0.5467157	+1264	[illegible]	+0.7810271	663	[illegible]	+0.3388538	546
18	0.5398533	0.5327324	1285	[illegible]	[illegible]	647	0.3407032	0.3425275	541
19	0.5255135	0.5182873	1306	[illegible]	0.7977414	631	0.3443296	0.3461063	536
20	0.5110240	0.5037241	1326	[illegible]	[illegible]	615	0.3478585	0.3495960	530
21	[illegible]	0.4890166	1346	[illegible]	0.8135510	597	0.3512888	[illegible]	524
22	+0.4816100	+0.4741688	+1366	[illegible]	+0.8211114	579	+0.3546196	+0.3562474	518
23	[illegible]	0.4591844	1386	[illegible]	[illegible]	560	[illegible]	0.3594270	512
24	0.4516423	[illegible]	1406	0.8320142	[illegible]	541	[illegible]	[illegible]	506
25	[illegible]	[illegible]	1425	[illegible]	[illegible]	522	[illegible]	[illegible]	499
26	0.4211549	0.4134561	1444	0.8457232	[illegible]	501	[illegible]	[illegible]	492
27	[illegible]	[illegible]	+1463	+0.8522178	+0.8553745	481	[illegible]	+0.3711146	485
28	[illegible]	[illegible]	1482	[illegible]	0.8615047	463	[illegible]	0.3737743	477
29	0.3745360	[illegible]	1501	0.8644777	[illegible]	443	0.3750641	[illegible]	469
30	[illegible]	[illegible]	1519	[illegible]	[illegible]	423	0.3775634	0.3787787	461
31	[illegible]	[illegible]	1537	[illegible]	[illegible]	402	[illegible]	0.3811090	452
June 1	+0.3269303	[illegible]	+1554	[illegible]	[illegible]	381	[illegible]	[illegible]	443
2	[illegible]	[illegible]	1571	[illegible]	[illegible]	360	0.3844116	0.3854575	434
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	338	[illegible]	[illegible]	425
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	316	[illegible]	[illegible]	416
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	294	[illegible]	[illegible]	407
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	272	[illegible]	[illegible]	398
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	249	[illegible]	[illegible]	388
8	[illegible]	0.2045799	[illegible]	[illegible]	[illegible]	226	[illegible]	[illegible]	378
9	[illegible]	[illegible]	1684	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	368
10	[illegible]	0.1711547	[illegible]	[illegible]	[illegible]	179	[illegible]	[illegible]	358
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	−153	[illegible]	[illegible]	347
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	128	[illegible]	0.4005502	336
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	102	0.4010112	0.4014442	325
14	[illegible]	[illegible]	1751	[illegible]	[illegible]	76	[illegible]	0.4022258	314
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50	[illegible]	[illegible]	303
16	[illegible]	[illegible]	+1775	[illegible]	[illegible]	24	[illegible]	[illegible]	291
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 3	[illegible]	[illegible]	279
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30	[illegible]	0.4042281	267
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57	0.4041443	0.4044379	255
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	84	[illegible]	0.4045399	243
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+112	[illegible]	[illegible]	230
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	140	[illegible]	[illegible]	218
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	205
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	196	[illegible]	[illegible]	192
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	225	[illegible]	[illegible]	179
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+254	[illegible]	[illegible]	166
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	153
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	312	[illegible]	[illegible]	140
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	342	[illegible]	[illegible]	126
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	113
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	− 99
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	85

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
July 1	−0.1738624	−0.1821939	+1894	+0.9190239	+0.9176658	+ 402	+0.3987248	+0.3981351	− 99
2	0.1905123	0.1988171	1897	0.9162427	0.9147546	432	0.3975173	0.3968714	85
3	0.2071075	0.2153829	1899	0.9132020	0.9115852	463	0.3961976	0.3954958	71
4	0.2236428	0.2318866	1901	0.9099040	0.9081585	493	0.3947661	0.3940085	57
5	0.2401136	0.2483233	1902	0.9063489	0.9044754	524	0.3932232	0.3924102	43
6	−0.2565152	−0.2646887	+1903	+0.9025383	+0.9005377	+ 554	+0.3915696	+0.3907015	− 29
7	0.2728432	0.2809780	1903	0.8984738	0.8963466	585	0.3898059	0.3888829	− 14
8	0.2890926	0.2971865	1902	0.8941565	0.8919038	616	0.3879327	0.3869554	00
9	0.3052592	0.3133102	1901	0.8895884	0.8872105	647	0.3859509	0.3849193	+ 15
10	0.3213390	0.3293449	1899	0.8847704	0.8822684	678	0.3838608	0.3827755	30
11	−0.3373274	−0.3452860	+1897	+0.8797047	+0.8770793	+ 709	+0.3816634	+0.3805246	+ 45
12	0.3532201	0.3611293	1894	0.8743925	0.8716445	740	0.3793592	0.3781673	59
13	0.3690132	0.3768712	1890	0.8688354	0.8659652	771	0.3769489	0.3757040	74
14	0.3847028	0.3925074	1885	0.8630344	0.8600434	802	0.3744327	0.3731354	89
15	0.4002845	0.4080336	1880	0.8569923	0.8538810	833	0.3718120	0.3704625	104
16	−0.4157541	−0.4234456	+1875	+0.8507097	+0.8474784	+ 864	+0.3690870	+0.3676855	+119
17	0.4311077	0.4387398	1869	0.8441876	0.8408378	896	0.3662581	0.3648051	135
18	0.4463414	0.4539117	1862	0.8374290	0.8339611	927	0.3633265	0.3618222	150
19	0.4614504	0.4689570	1854	0.8304345	0.8268494	958	0.3602924	0.3587372	166
20	0.4764309	0.4838717	1845	0.8232060	0.8195044	989	0.3571566	0.3555508	181
21	−0.4912788	−0.4986516	+1835	+0.8157449	+0.8119277	+1020	+0.3539198	+0.3522638	+196
22	0.5059895	0.5132918	1824	0.8080530	0.8041210	1051	0.3505828	0.3488768	211
23	0.5205582	0.5277882	1812	0.8001320	0.7960866	1082	0.3471461	0.3453908	227
24	0.5349811	0.5421364	1800	0.7919846	0.7878260	1113	0.3436109	0.3418066	243
25	0.5492535	0.5563320	1788	0.7836114	0.7793413	1143	0.3399779	0.3381250	258
26	−0.5633713	−0.5703708	+1775	+0.7750157	+0.7706348	+1174	+0.3362481	+0.3343472	+274
27	0.5773299	0.5842480	1762	0.7661991	0.7617090	1204	0.3324224	0.3304740	289
28	0.5911245	0.5979590	1748	0.7571648	0.7525666	1234	0.3285021	0.3265068	305
29	0.6047511	0.6115005	1733	0.7479149	0.7432099	1264	0.3244882	0.3224467	320
30	0.6182063	0.6248676	1717	0.7384520	0.7336417	1293	0.3203823	0.3182949	335
31	−0.6314843	−0.6380564	+1701	+0.7287793	+0.7238652	+1322	+0.3161849	+0.3140526	+350
Aug. 1	0.6445829	0.6510630	1684	0.7188997	0.7138830	1351	0.3118981	0.3097213	366
2	0.6574965	0.6638833	1666	0.7088157	0.7036983	1380	0.3075226	0.3053022	381
3	0.6702226	0.6765141	1647	0.6985310	0.6933141	1409	0.3030603	0.3007969	396
4	0.6827572	0.6889515	1628	0.6880484	0.6827342	1438	0.2985123	0.2962067	411
5	−0.6950965	−0.7011919	+1608	+0.6773718	+0.6719612	+1466	+0.2938802	+0.2915329	+426
6	0.7072372	0.7132320	1588	0.6665032	0.6609983	1494	0.2891650	0.2867767	441
7	0.7191760	0.7250690	1567	0.6554468	0.6498492	1522	0.2843683	0.2819400	456
8	0.7309105	0.7366999	1546	0.6442058	0.6385169	1549	0.2794918	0.2770240	471
9	0.7424369	0.7481210	1523	0.6327830	0.6270044	1576	0.2745367	0.2720299	486
10	−0.7537519	−0.7593296	+1500	+0.6211816	+0.6153151	+1602	+0.2695040	+0.2669591	+501
11	0.7648534	0.7703227	1470	0.6094052	0.6034521	1628	0.2643954	0.2618130	516
12	0.7757375	0.7810976	1451	0.5974563	0.5914183	1654	0.2592120	0.2565928	530
13	0.7864024	0.7916512	1426	0.5853385	0.5792172	1679	0.2539554	0.2513000	545
14	0.7968440	0.8019807	1400	0.5730549	0.5668520	1704	0.2480268	0.2459359	560
15	−0.8070606	−0.8120832	+1373	+0.5606057	+0.5543253	+1729	+0.2432274	+0.2405015	+574
16	−0.8170483	−0.8219554	+1346	+0.5480023	+0.5416404	+1753	+0.2377584	+0.2349984	+588

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date	X True Equinox Noon	X True Equinox Midnight	Reduc. to Mean Equi. of Jan. 0 Noon	Y True Equinox Noon	Y True Equinox Midnight	Reduc. to Mean Equi. of Jan. 0 Noon	Z True Equinox Noon	Z True Equinox Midnight	Reduc. to Mean Equi. of Jan. 0 Noon
Aug. 16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+1753	+0.2377584	[illegible]	+ 588
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	602
18	[illegible]	[illegible]	[illegible]	0.5221241	[illegible]	[illegible]	[illegible]	[illegible]	616
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	1231	[illegible]	[illegible]	[illegible]	0.2152172	[illegible]	643
21	[illegible]	[illegible]	+1202	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 657
22	[illegible]	[illegible]	1172	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	1141	[illegible]	[illegible]	1910	[illegible]	[illegible]	684
24	[illegible]	[illegible]	1109	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	1077	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	710
26	[illegible]	[illegible]	+1045	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 723
27	[illegible]	[illegible]	1012	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2007	[illegible]	0.1641461	[illegible]
29	[illegible]	[illegible]	945	[illegible]	[illegible]	2024	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	910	[illegible]	[illegible]	2041	[illegible]	0.1515210	772
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+2057	[illegible]	[illegible]	[illegible]
Sept. 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2101	[illegible]	[illegible]	817
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2117	[illegible]	[illegible]	828
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2144	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2216	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2224	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2251	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2255	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	+ 12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	− 31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	73	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date.	X True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Y True Equinox.		Reduc. to Mean Eq'x of Jan. 0.	Z True Equinox.		Reduc. to Mean Eq'x of Jan. 0.
	Noon.	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*	*Noon.*	*Midnight.*	*Noon.*
Oct. 1	−0.9892932	−0.9878303	− 374	−0.1367525	−0.1445269	+2258	−0.0593331	−0.0627058	+1026
2	0.9862943	0.9846856	417	0.1522899	0.1600414	2254	0.0660736	0.0694364	1029
3	0.9830041	0.9812496	461	0.1677807	0.1755072	2250	0.0727938	0.0761457	1032
4	0.9794225	0.9775234	505	0.1832205	0.1909199	2245	0.0794918	0.0828319	1035
5	0.9755520	0.9735084	548	0.1986049	0.2062748	2239	0.0861657	0.0894929	1037
6	−0.9713927	−0.9692053	− 592	−0.2139290	−0.2215669	+2232	−0.0928134	−0.0961269	+1039
7	0.9669462	0.9646157	635	0.2291882	0.2367925	2225	0.0994332	0.1027320	1041
8	0.9622140	0.9597411	679	0.2443790	0.2519471	2216	0.1060232	0.1093064	1041
9	0.9571973	0.9545829	722	0.2594963	0.2670263	2207	0.1125815	0.1158483	1041
10	0.9518978	0.9491421	766	0.2745364	0.2820262	2197	0.1191065	0.1223559	1041
11	−0.9463161	−0.9434199	− 809	−0.2894951	−0.2969424	+2187	−0.1255962	−0.1288272	+1041
12	0.9404537	0.9374178	852	0.3043678	0.3117707	2176	0.1320488	0.1352607	1041
13	0.9343122	0.9311372	895	0.3191507	0.3265076	2165	0.1384626	0.1416544	1040
14	0.9278928	0.9245793	938	0.3338402	0.3411474	2153	0.1448357	0.1480064	1039
15	0.9211968	0.9177453	981	0.3484294	0.3556860	2141	0.1511661	0.1543147	1037
16	−0.9142252	−0.9106370	−1024	−0.3629165	−0.3701202	+2127	−0.1574520	−0.1605775	+1036
17	0.9069806	0.9032560	1067	0.3772966	0.3844450	2113	0.1636915	0.1667932	1034
18	0.8994635	0.8956034	1110	0.3915650	0.3986560	2098	0.1698826	0.1729594	1032
19	0.8916760	0.8876817	1152	0.4057176	0.4127494	2083	0.1760234	0.1790745	1029
20	0.8836204	0.8794922	1195	0.4197504	0.4267192	2067	0.1821122	0.1851359	1026
21	−0.8752976	−0.8710371	−1237	−0.4336560	−0.4405610	+2051	−0.1881458	−0.1911419	+1022
22	0.8667106	0.8623182	1280	0.4474332	0.4542717	2034	0.1941236	0.1970907	1018
23	0.8578604	0.8533380	1322	0.4610760	0.4678456	2017	0.2000430	0.2029801	1014
24	0.8487510	0.8440994	1364	0.4745799	0.4812784	1999	0.2059019	0.2088081	1010
25	0.8393838	0.8346048	1406	0.4879405	0.4945558	1980	0.2116984	0.2145728	1005
26	−0.8297625	−0.8248571	−1447	−0.5011535	−0.5077031	+1961	−0.2174308	−0.2202722	+1000
27	0.8198891	0.8148588	1488	0.5142141	0.5206860	1941	0.2230969	0.2259046	994
28	0.8097669	0.8046139	1529	0.5271182	0.5335103	1920	0.2286950	0.2314680	988
29	0.7994000	0.7941253	1570	0.5398617	0.5461720	1898	0.2342233	0.2369607	981
30	0.7887905	0.7833960	1610	0.5524406	0.5586670	1875	0.2396800	0.2423810	974
31	−0.7770421	−0.7724293	−1650	0.5648507	−0.5709313	+1852	−0.2450634	−0.2477272	+ 966
Nov. 1	0.7668582	0.7612294	1690	0.5770882	0.5831410	1828	0.2503720	0.2529977	958
2	0.7555432	0.7497999	1729	0.5891492	0.5951127	1803	0.2556040	0.2581908	950
3	0.7440000	0.7381437	1768	0.6010307	0.6069025	1778	0.2607580	0.2633052	942
4	0.7322317	0.7262646	1807	0.6127281	0.6185072	1752	0.2658324	0.2683394	933
5	0.7202428	0.7141665	1846	−0.6242393	−0.6299236	+1726	−0.2708260	−0.2732919	+ 924
6	0.7080302	0.7018526	1884	0.6355599	0.6411480	1700	0.2757371	0.2781614	915
7	0.6956159	0.6893266	1922	0.6460874	0.6521777	1673	0.2805646	0.2829465	905
8	0.6829851	0.6765919	1959	0.6576184	0.6630391	1645	0.2853070	0.2876458	895
9	0.6701475	0.6636521	1996	0.6683495	0.6736392	1617	0.2899527	0.2922577	884
10	0.6571064	0.6503109	2033	−0.6788778	−0.6840640	+1588	−0.2945306	−0.2967812	+ 873
11	0.6438659	0.6371718	2070	0.6892001	0.6942829	1559	0.2990094	0.3012148	863
12	0.6304200	0.6236380	210[illegible]	0.6993131	0.7042902	1529	0.3033074	0.3055569	852
13	0.6167904	0.6099137	2142	0.7092139	0.7140837	1498	0.3076033	0.3098064	841
14	0.6020812	0.5960025	2177	0.7188913	0.7236002	1467	0.3118959	0.3139617	829
15	0.5889779	0.5819078	−2212	0.7283659	−0.7330161	+1435	−0.3160036	−0.3180214	+ 817
16	−0.5747928	0.5676336	2247	−0.7376104	−0.7421457	+1403	−0.3200150	−0.3219842	+ 804

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Date	X True Equinox Noon	X True Equinox Midnight	Reduc. to Mean Equ. of Jan. 0 Noon	Y True Equinox Noon	Y True Equinox Midnight	Reduc. to Mean Equ. of Jan. 0 Noon	Z True Equinox Noon	Z True Equinox Midnight	Reduc. to Mean Equ. of Jan. 0 Noon
Nov. 16	[illegible]	[illegible]	2247	[illegible]	0.7481487	+1403	−0.3200159	−0.3219842	+804
17	[illegible]	[illegible]	[illegible]	[illegible]	0.7510542	[illegible]	[illegible]	[illegible]	791
18	[illegible]	[illegible]	2314	[illegible]	[illegible]	1335	0.3277415	[illegible]	777
19	[illegible]	[illegible]	2346	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	748
21	[illegible]	[illegible]	−2410	[illegible]	[illegible]	+1229	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	2441	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	718
23	[illegible]	[illegible]	2472	[illegible]	[illegible]	1196	[illegible]	[illegible]	703
24	[illegible]	0.4474321	[illegible]	[illegible]	[illegible]	1119	0.3484742	[illegible]	[illegible]
25	[illegible]	[illegible]	2531	0.8103159	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	0.8171745	[illegible]	+1042	−0.3545131	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1003	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	964	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	924	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	883	[illegible]	[illegible]	[illegible]
Dec. 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 842	[illegible]	[illegible]	+571
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	554
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	758	0.3722324	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	673	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+481
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	541	[illegible]	[illegible]	443
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	496	[illegible]	[illegible]	424
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	451	[illegible]	[illegible]	404
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 405	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	313	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	219	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 172	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	125	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	122	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	172	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	222	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	324	[illegible]	[illegible]	+ 63
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 16
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	− 7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JANUARY. True Longitude.	JANUARY. Latitude.	Day of Month.	FEBRUARY. True Longitude.	FEBRUARY. Latitude.	Day of Month.	MARCH. True Longitude.	MARCH. Latitude.
	° ′ ″	° ′ ″		° ′ ″	° ′ ″		° ′ ″	° ′ ″
1.0	258 11 11.7	−4 22 21.1	1.0	308 45 36.6	−0 35 59.8	1.0	317 50 14.9	+0 14 23.8
1.5	265 23 18.3	3 59 22.3	1.5	315 22 26.0	+0 0 36.8	1.5	324 15 38.9	0 49 27.8
2.0	272 32 31.5	3 32 45.2	2.0	321 55 11.8	0 36 50.6	2.0	330 38 3.8	1 23 36.3
2.5	279 38 7.9	3 3 1.7	2.5	328 23 49.2	1 12 12.9	2.5	336 57 32.5	1 56 25.0
3.0	286 39 29.0	2 30 46.6	3.0	334 48 18.1	1 46 17.4	3.0	343 14 8.2	2 27 31.6
3.5	293 36 2.9	−1 56 36.1	3.5	341 8 41.8	+2 18 40.8	3.5	349 27 54.9	+2 56 36.1
4.0	300 27 24.6	1 21 6.9	4.0	347 25 7.7	2 49 2.4	4.0	355 38 57.7	3 23 21.0
4.5	307 13 16.8	0 44 54.6	4.5	353 37 47.4	3 17 4.8	4.5	1 47 23.0	3 47 31.0
5.0	313 53 30.1	−0 8 33.0	5.0	359 46 56.2	3 42 33.5	5.0	7 53 19.0	4 8 53.4
5.5	320 28 2.8	+0 27 26.7	5.5	5 52 52.9	4 5 16.2	5.5	13 56 56.3	4 27 17.9
6.0	326 57 0.6	+1 2 36.1	6.0	11 55 59.6	+4 25 2.9	6.0	19 58 27.4	+4 42 36.4
6.5	333 20 35.6	1 36 30.3	6.5	17 56 41.5	4 41 45.8	6.5	25 58 7.7	4 54 42.7
7.0	339 39 5.9	2 8 47.5	7.0	23 55 26.6	4 55 19.0	7.0	31 56 15.1	5 3 32.6
7.5	345 52 54.5	2 39 9.0	7.5	29 52 45.0	5 5 37.7	7.5	37 53 10.1	5 9 3.5
8.0	352 2 28.8	3 7 18.8	8.0	35 49 8.9	5 12 38.4	8.0	43 49 16.1	5 11 14.0
8.5	358 8 19.6	+3 33 3.7	8.5	41 45 12.0	+5 16 18.4	8.5	49 44 59.3	+5 10 4.4
9.0	4 11 0.1	3 56 12.2	9.0	47 41 29.1	5 16 36.0	9.0	55 40 48.2	5 5 35.6
9.5	10 11 5.5	4 16 34.8	9.5	53 38 35.5	5 13 30.1	9.5	61 37 13.5	4 57 49.6
10.0	16 9 12.2	4 34 3.3	10.0	59 37 7.0	5 7 0.5	10.0	67 34 48.2	4 46 49.1
10.5	22 5 57.2	4 48 30.8	10.5	65 37 38.9	4 57 7.9	10.5	73 34 6.8	4 32 37.9
11.0	28 1 57.6	+4 59 51.1	11.0	71 40 45.9	+4 43 53.7	11.0	79 35 45.0	+4 15 20.6
11.5	33 57 50.1	5 7 58.9	11.5	77 47 1.2	4 27 20.7	11.5	85 40 19.5	3 55 3.2
12.0	39 54 10.4	5 12 49.8	12.0	83 56 56.1	4 7 33.2	12.0	91 48 26.9	3 31 52.6
12.5	45 51 32.4	5 14 19.6	12.5	90 10 59.6	3 44 37.5	12.5	98 0 43.4	3 5 57.8
13.0	51 50 28.9	5 12 25.3	13.0	96 29 37.1	3 18 42.4	13.0	104 17 44.0	2 37 29.7
13.5	57 51 29.9	+5 7 4.8	13.5	102 53 10.2	+2 49 59.2	13.5	110 40 1.5	+2 6 41.5
14.0	63 55 2.5	4 58 16.9	14.0	109 21 56.0	2 18 42.4	14.0	117 8 5.1	1 33 49.5
14.5	70 1 31.7	4 46 1.9	14.5	115 56 6.2	1 45 10.3	14.5	123 42 19.9	0 59 13.3
15.0	76 11 18.5	4 30 22.2	15.0	122 35 46.3	1 9 45.3	15.0	130 23 5.0	+0 23 16.1
15.5	82 24 40.0	4 11 22.0	15.5	129 20 55.4	+0 32 53.5	15.5	137 10 32.5	−0 13 35.0
16.0	88 41 50.0	+3 49 8.1	16.0	136 11 25.7	−0 4 55.0	16.0	144 4 46.0	−0 50 48.3
16.5	95 2 57.8	3 23 50.2	16.5	143 7 2.5	0 43 6.3	16.5	151 5 39.6	1 27 49.2
17.0	101 28 9.3	2 55 41.3	17.0	150 7 24.2	1 21 3.5	17.0	158 12 56.8	2 3 59.3
17.5	107 57 25.7	2 24 57.7	17.5	157 12 2.5	1 58 7.9	17.5	165 26 10.1	2 38 38.0
18.0	114 30 44.5	1 51 59.2	18.0	164 20 23.0	2 33 39.7	18.0	172 44 40.7	3 11 4.0
18.5	121 8 0.0	+1 17 9.3	18.5	171 31 47.0	−3 6 59.5	18.5	180 7 39.8	−3 40 36.4
19.0	127 49 2.7	0 40 54.7	19.0	178 45 31.9	3 37 29.5	19.0	187 34 9.2	4 6 36.5
19.5	134 33 40.8	+0 3 45.2	19.5	186 0 52.7	4 4 35.3	19.5	195 3 3.6	4 28 30.3
20.0	141 21 39.8	−0 33 47.0	20.0	193 17 4.1	4 27 46.9	20.0	202 33 13.4	4 45 49.7
20.5	148 12 43.7	1 11 7.9	20.5	200 33 21.5	4 46 39.3	20.5	210 3 27.4	4 58 13.5
21.0	155 6 35.0	−1 47 42.5	21.0	207 49 2.8	−5 0 53.6	21.0	217 32 35.8	−5 5 28.7
21.5	162 2 56.2	2 22 55.3	21.5	215 3 29.4	5 10 17.5	21.5	224 59 33.8	5 7 30.9
22.0	169 1 28.6	2 56 11.7	22.0	222 16 7.2	5 14 44.8	22.0	232 23 23.4	5 4 23.6
22.5	176 1 54.3	3 26 58.5	22.5	229 26 27.5	5 14 15.3	22.5	239 43 15.5	4 56 17.4
23.0	183 3 55.5	3 54 45.3	23.0	236 34 7.0	5 8 55.0	23.0	246 58 31.5	4 43 29.6
23.5	190 7 14.9	−4 19 3.4	23.5	243 38 47.5	−4 58 54.6	23.5	254 8 42.9	−4 26 22.4
24.0	197 11 35.6	4 39 28.7	24.0	250 40 15.6	4 44 29.3	24.0	261 13 32.0	4 5 21.6
24.5	204 16 41.2	4 55 41.1	24.5	257 38 23.3	4 25 58.1	24.5	268 12 50.5	3 40 55.8
25.0	211 22 15.6	5 7 23.8	25.0	264 33 6.1	4 3 43.1	25.0	275 6 38.3	3 13 34.7
25.5	218 28 2.5	5 14 25.7	25.5	271 24 22.3	3 38 9.1	25.5	281 55 2.5	2 43 48.9
26.0	225 33 45.6	−5 16 40.1	26.0	278 12 12.8	−3 9 42.6	26.0	288 38 15.5	−2 12 8.6
26.5	232 39 8.0	5 14 5.3	26.5	284 56 40.1	2 38 51.6	26.5	295 16 33.9	1 39 3.9
27.0	239 43 52.3	5 6 44.6	27.0	291 37 47.4	2 6 5.2	27.0	301 50 16.7	1 5 3.7
27.5	246 47 40.5	4 54 46.2	27.5	298 15 38.7	1 31 53.0	27.5	308 19 44.7	−0 30 35.6
28.0	253 50 13.1	4 38 23.1	28.0	304 50 17.9	0 56 44.7	28.0	314 45 19.1	+0 3 53.8
28.5	260 51 10.2	−4 17 53.0	28.5	311 21 48.9	−0 21 9.6	28.5	321 7 20.4	+0 37 59.2
29.0	267 50 12.0	3 53 37.6	29.0	317 50 14.9	+0 14 23.8	29.0	327 26 8.1	1 11 17.0
29.5	274 46 57.9	3 26 2.2	29.5	324 15 36.9	0 49 27.8	29.5	333 42 0.4	1 43 24.9
30.0	281 41 7.6	2 55 36.0	30.0	330 38 3.8	1 23 36.3	30.0	339 55 13.8	2 14 2.2
30.5	288 32 21.6	2 22 49.6	30.5	336 57 32.5	1 56 25.0	30.5	346 6 2.6	2 42 49.9
31.0	295 20 21.7	−1 48 16.0	31.0	343 14 8.2	+2 27 31.6	31.0	352 14 39.5	+3 9 30.7
31.5	302 4 51.5	−1 12 28.1	31.5	349 27 54.9	+2 56 36.1	31.5	358 21 15.7	+3 33 48.9

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month	APRIL True Longitude	APRIL Latitude	Day of Month	MAY True Longitude	MAY Latitude	Day of Month	JUNE True Longitude	JUNE Latitude
	° ′ ″	° ′ ″		° ′ ″	° ′ ″		° ′ ″	° ′ ″
1.0	4 26 1.0	+3 55 31.0	1.0	37 22 20.1	+4 58 41.8	1.0	82 0 30.9	+3 37 14.2
1.5	10 29 4.1	4 14 25.4	1.5	43 17 2[illegible]	4 58 49.1	1.5	88 2 11.0	3 13 35.9
2.0	16 30 34.0	4 30 22.2	2.0	49 13 23.8	4 55 41.4	2.0	94 4 55.0	2 47 35.5
2.5	22 30 38.7	4 43 13.7	2.5	55 9 15.5	4 49 20.8	2.5	100 9 31.7	2 19 36.6
3.0	28 29 27.1	4 52 34.4	3.0	61 5 14.8	4 40 51.0	3.0	106 16 8.4	1 49 46.4
3.5	34 27 9.4	+4 59 20.1	3.5	67 1 33.8	+4 27 17.4	3.5	112 25 5.2	+1 18 25.7
4.0	40 23 56.8	5 2 28.9	4.0	72 58 26.6	4 11 46.5	4.0	118 36 41.2	0 45 51.5
4.5	46 20 2.4	5 2 20.4	4.5	78 56 9.1	3 53 26.6	4.5	124 51 17.2	+0 12 30.3
5.0	52 15 41.6	4 58 55.7	5.0	84 54 50.7	3 32 27.5	5.0	131 9 15.8	0 21 22.1
5.5	58 11 12.0	4 52 17.4	5.5	90 55 18.8	3 8 59.8	5.5	137 31 0.9	0 55 20.5
6.0	64 6 54.2	+4 42 29.4	6.0	96 57 30.2	+2 43 15.7	6.0	143 56 57.2	1 29 0.3
6.5	70 3 11.3	4 29 36.6	6.5	103 2 0.0	2 15 28.6	6.5	150 27 29.4	2 1 55.9
7.0	76 0 29.2	4 13 45.2	7.0	109 9 16.9	1 45 55.4	7.0	157 3 1.7	2 33 40.2
7.5	81 59 16.7	3 55 2.5	7.5	115 19 51.4	1 14 46.0	7.5	163 43 56.0	3 3 45.0
8.0	88 0 5.0	3 33 56.6	8.0	121 34 16.1	0 42 24.2	8.0	170 30 31.3	3 31 41.1
8.5	94 3 27.5	+3 9 56.8	8.5	127 53 4.6	+0 9 7.6	8.5	177 23 2.0	-3 56 50.0
9.0	100 9 59.5	2 43 14.0	9.0	134 16 50.7	0 24 42.7	9.0	184 21 36.4	4 19 9.0
9.5	106 20 17.8	2 14 40.3	9.5	140 46 7.4	0 58 41.3	9.5	191 26 15.1	4 37 41.9
10.0	112 34 50.5	1 44 9.6	10.0	147 21 26.0	1 32 28.4	10.0	198 36 49.5	4 52 10.3
10.5	118 54 41.6	1 11 58.0	10.5	154 3 14.2	2 5 29.9	10.5	205 53 0.8	5 2 9.5
11.0	125 19 52.9	+0 38 24.1	11.0	160 51 54.3	-2 37 17.6	11.0	213 14 19.3	-5 7 18.8
11.5	131 51 28.0	+0 3 48.8	11.5	167 47 42.0	3 7 19.0	11.5	220 40 3.7	5 7 22.8
12.0	138 29 35.0	0 31 23.3	12.0	174 50 44.1	3 35 0.1	12.0	228 9 22.0	5 2 13.2
12.5	145 14 44.3	1 6 44.7	12.5	182 0 56.0	3 59 46.1	12.5	235 41 12.8	4 51 49.0
13.0	152 7 14.3	1 41 44.4	13.0	189 18 1.4	4 21 2.6	13.0	243 14 27.3	4 36 18.0
13.5	159 7 10.6	-2 15 48.0	13.5	196 41 20.9	4 38 16.4	13.5	250 47 52.3	4 15 56.6
14.0	166 14 30.2	2 48 18.7	14.0	204 10 36.9	4 50 58.2	14.0	258 20 12.8	3 51 9.3
14.5	173 28 56.3	3 18 37.0	14.5	211 44 24.2	4 58 43.6	14.5	265 50 15.9	3 22 27.9
15.0	180 50 0.8	3 46 5.2	15.0	219 21 41.6	5 1 15.1	15.0	273 16 53.2	2 50 30.1
15.5	188 16 58.2	4 10 3.1	15.5	227 1 9.0	4 58 24.0	15.5	280 39 4.3	2 15 57.1
16.0	195 48 51.6	-4 29 55.3	16.0	234 41 20.4	-4 50 10.4	16.0	287 55 58.2	1 39 32.3
16.5	203 24 31.6	4 45 11.1	16.5	242 20 47.0	4 36 44.1	16.5	295 6 54.5	1 1 50.2
17.0	211 2 50.1	4 55 26.4	17.0	249 58 2.8	4 18 24.7	17.0	302 11 24.4	0 23 59.5
17.5	218 41 43.0	5 0 25.3	17.5	257 32 47.5	3 55 30.2	17.5	309 9 10.6	+0 13 48.2
18.0	226 20 34.0	5 0 2.1	18.0	265 0 50.6	3 29 1.5	18.0	316 0 6.4	0 50 45.6
18.5	233 57 28.7	-4 54 16.7	18.5	272 24 13.4	-2 59 0.9	18.5	322 44 14.5	+1 26 30.9
19.0	241 31 11.2	4 43 24.4	19.0	279 41 10.7	2 26 45.0	19.0	329 21 46.1	2 0 28.8
19.5	249 0 12.8	4 27 44.1	19.5	286 51 11.4	1 52 28.0	19.5	335 52 50.7	2 32 20.3
20.0	256 24 45.1	4 7 42.9	20.0	293 55 58.0	1 16 58.8	20.0	342 18 19.1	3 1 47.1
20.5	263 42 54.9	3 43 52.2	20.5	300 49 25.2	0 40 55.3	20.5	348 38 12.4	3 28 34.5
21.0	270 54 28.9	3 16 46.5	21.0	307 37 30.0	-0 4 52.2	21.0	354 53 11.0	+3 52 31.0
21.5	277 59 12.8	2 47 1.8	21.5	314 18 51.9	+0 30 39.6	21.5	1 3 48.3	4 13 27.3
22.0	284 57 1.3	2 15 14.1	22.0	320 53 32.1	1 5 18.7	22.0	7 10 38.5	4 31 17.0
22.5	291 47 50.5	1 41 58.2	22.5	327 22 0.8	1 38 21.2	22.5	13 14 16.2	4 45 54.1
23.0	298 32 21.4	1 7 47.2	23.0	333 44 51.2	2 9 30.7	23.0	19 15 16.0	4 57 15.2
23.5	305 10 27.4	0 33 11.7	23.5	340 2 36.8	+2 39 17.3	23.5	25 14 11.3	+5 5 17.6
24.0	311 42 41.0	+0 1 20.9	24.0	346 15 52.2	3 6 28.1	24.0	31 11 34.4	5 9 5.9
24.5	318 9 38.3	0 35 21.3	24.5	352 25 12.1	3 31 10.4	24.5	37 7 55.7	5 11 21.2
25.0	324 31 52.6	1 8 30.6	25.0	358 31 10.2	3 53 13.2	25.0	43 3 41.9	5 9 22.3
25.5	330 49 31.7	1 40 25.0	25.5	4 34 19.4	4 12 27.4	25.5	48 59 25.5	5 4 4.6
26.0	337 3 14.2	+2 10 46.3	26.0	10 35 10.5	+4 28 45.0	26.0	54 55 24.7	+4 55 50.6
26.5	343 13 46.3	2 39 16.2	26.5	16 34 12.0	4 41 5[illegible]	26.5	60 52 1[illegible]	4 43 44.3
27.0	349 21 25.4	3 5 4[illegible]	27.0	22 31 5[illegible]	4 52 [illegible]	27.0	66 49 42.1	4 28 [illegible]
27.5	355 2[illegible]	3 27 41.2	27.5	28 28 [illegible]	4 59 [illegible]	27.5	72 48 1[illegible]	4 10 5[illegible]
28.0	1 29 44.3	3 51 15.4	28.0	34 24 [illegible]	5 2 [illegible]	28.0	78 49 [illegible]	3 [illegible]
28.5	[illegible]	+4 [illegible]	28.5	40 30 10.3	+5 3 2.9	28.5	84 51 21.2	+3 26 41.7
29.0	13 31 [illegible]	4 [illegible]	29.0	46 15 48.7	5 0 9.4	29.0	90 55 11.1	3 0 47.2
29.5	19 30 [illegible]	4 [illegible]	29.5	52 11 30.1	4 54 0.2	29.5	97 1 [illegible]	2 32 35.7
30.0	25 27 [illegible]	4 48 [illegible]	30.0	58 7 54.9	4 44 40.1	30.0	103 10 4[illegible]	2 2 25.6
30.5	31 24 4[illegible]	4 55 1[illegible]	30.5	64 4 4[illegible]	4 32 12.2	30.5	109 21 [illegible]	1 30 55.1
31.0	37 21 [illegible]	+4 58 41.8	31.0	[illegible]	+4 16 42.9	31.0	115 35 [illegible]	+0 57 24.5
31.5	43 [illegible]	+4 5[illegible]	31.5	[illegible]	+3 58 20.1	31.5	121 52 24.0	+0 23 15.4

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JULY. True Longitude.	JULY. Latitude.	Day of Month.	AUGUST. True Longitude.	AUGUST. Latitude.	Day of Month.	SEPTEMBER. True Longitude.	SEPTEMBER. Latitude.
	° ′ ″	° ′ ″		° ′ ″	° ′ ″		° ′ ″	° ′ ″
1.0	115 35 46.3	+0 57 24.5	1.0	164 8 10.0	−3 15 40.9	1.0	216 26 16.4	−5 11 22.9
1.5	121 52 24.0	+0 23 15.4	1.5	170 55 41.1	3 43 45.9	1.5	223 36 14.5	5 8 23.0
2.0	128 11 57.9	−0 11 28.3	2.0	177 46 18.3	4 8 51.9	2.0	230 45 43.8	5 0 35.1
2.5	134 34 36.9	0 46 21.8	2.5	184 39 50.6	4 30 32.6	2.5	237 54 19.1	4 48 8.2
3.0	141 0 30.6	1 20 59.0	3.0	191 36 6.3	4 48 24.6	3.0	245 1 38.7	4 31 16.6
3.5	147 29 49.2	−1 54 52.9	3.5	198 34 52.2	−5 2 7.6	3.5	252 7 25.1	−4 10 18.7
4.0	154 2 42.9	2 27 35.9	4.0	205 35 54.2	5 11 25.0	4.0	259 11 24.2	3 45 [illegible]6.8
4.5	160 39 21.9	2 58 39.9	4.5	212 38 58.2	5 16 4.5	4.5	266 13 24.9	3 17 36.8
5.0	167 19 56.0	3 27 37.0	5.0	219 43 48.9	5 15 57.9	5.0	273 13 18.5	2 46 47.4
5.5	174 4 33.6	3 53 59.8	5.5	226 50 9.6	5 11 2.2	5.5	280 10 58.3	2 13 39.4
6.0	180 53 21.6	−4 17 21.0	6.0	233 57 42.4	−5 1 19.3	6.0	287 6 18.7	−1 38 44.8
6.5	187 46 24.6	4 37 15.2	6.5	241 6 8.3	4 46 56.1	6.5	293 59 14.4	1 2 36.8
7.0	194 43 43.3	4 53 18.3	7.0	248 15 6.4	4 28 4.9	7.0	300 49 40.1	−0 25 49.0
7.5	201 45 14.5	5 5 9.2	7.5	255 24 14.5	4 5 3.2	7.5	307 37 30.5	+0 11 5.3
8.0	208 50 50.0	5 12 28.8	8.0	262 33 9.0	3 38 13.1	8.0	314 22 39.5	0 47 33.6
8.5	216 0 15.6	−5 15 2.8	8.5	269 41 24.6	−3 8 1.5	8.5	321 5 0.3	+1 23 4.8
9.0	223 13 10.6	5 12 41.2	9.0	276 48 34.9	2 34 59.2	9.0	327 44 25.7	1 57 9.7
9.5	230 29 7.8	5 5 19.3	9.5	283 54 12.3	1 59 40.4	9.5	334 20 48.1	2 29 21.6
10.0	237 47 33.7	4 52 58.8	10.0	290 57 49.6	1 22 41.7	10.0	340 54 0.2	2 59 16.6
10.5	245 7 48.2	4 35 48.0	10.5	297 58 59.5	0 44 40.7	10.5	347 23 55.4	3 26 34.0
11.0	252 29 6.1	−4 14 2.0	11.0	304 57 15.7	−0 6 15.8	11.0	353 50 28.1	+3 50 56.3
11.5	259 50 38.5	3 48 2.8	11.5	311 52 13.3	+0 31 55.6	11.5	0 13 34.7	4 12 9.5
12.0	267 11 33.6	3 18 18.8	12.0	318 43 30.1	1 9 18.0	12.0	6 33 13.5	4 30 3.0
12.5	274 30 59.5	2 45 23.8	12.5	325 30 46.8	1 45 18.2	12.5	12 49 25.9	4 44 29.6
13.0	281 48 4.4	2 9 56.0	13.0	332 13 47.7	2 19 26.3	13.0	19 2 16.2	4 55 25.0
13.5	289 2 0.3	−1 32 36.4	13.5	338 52 21.2	+2 51 16.6	13.5	25 11 52.0	+5 2 47.0
14.0	296 12 3.8	0 54 7.1	14.0	345 26 20.1	3 20 27.1	14.0	31 18 24.9	5 6 37.0
14.5	303 17 36.9	−0 15 10.1	14.5	351 55 42.0	3 46 40.0	14.5	37 22 9.5	5 6 57.4
15.0	310 18 9.0	+0 23 34.0	15.0	358 20 29.2	4 9 41.3	15.0	43 23 24.8	5 3 52.7
15.5	317 13 16.4	1 1 28.2	15.5	4 40 48.9	4 29 20.9	15.5	49 22 32.8	4 57 28.8
16.0	324 2 43.4	+1 37 58.9	16.0	10 56 52.8	+4 45 32.2	16.0	55 19 58.8	+4 47 52.5
16.5	330 46 22.1	2 12 36.6	16.5	17 8 56.9	4 58 11.1	16.5	61 16 11.7	4 35 11.6
17.0	337 24 12.0	2 44 56.5	17.0	23 17 21.2	5 7 16.1	17.0	67 11 42.7	4 19 34.6
17.5	343 56 19.2	3 14 38.3	17.5	29 22 29.6	5 12 47.8	17.5	73 7 5.5	4 1 10.5
18.0	350 22 56.0	3 41 25.8	18.0	35 24 48.7	5 14 48.4	18.0	79 2 56.1	3 40 9.0
18.5	356 44 20.1	+4 5 6.8	18.5	41 24 47.8	+5 13 21.3	18.5	84 59 51.9	+3 16 40.5
19.0	3 0 53.9	4 25 32.1	19.0	47 22 58.8	5 8 30.8	19.0	90 58 31.3	2 50 56.3
19.5	9 13 3.6	4 42 35.5	19.5	53 19 55.3	5 0 22.3	19.5	96 59 33.5	2 23 8.4
20.0	15 21 17.8	4 56 13.2	20.0	59 16 11.8	4 49 1.8	20.0	103 3 37.4	1 53 30.1
20.5	21 26 8.2	5 6 23.0	20.5	65 12 23.9	4 34 35.7	20.5	109 11 21.2	1 22 16.4
21.0	27 28 7.4	+5 13 4.5	21.0	71 9 7.6	+4 17 11.4	21.0	115 23 21.2	+0 49 43.9
21.5	33 27 49.2	5 16 18.5	21.5	77 6 58.7	3 56 57.1	21.5	121 40 11.7	+0 16 11.5
22.0	39 25 47.9	5 16 6.6	22.0	83 6 32.3	3 34 1.9	22.0	128 2 23.3	−0 17 59.7
22.5	45 22 37.6	5 12 31.2	22.5	89 8 22.4	3 8 36.0	22.5	134 30 21.6	0 52 25.9
23.0	51 18 52.0	5 5 35.7	23.0	95 13 1.4	2 40 51.3	23.0	141 4 26.5	1 26 40.5
23.5	57 15 3.8	+4 55 24.3	23.5	101 20 59.6	+2 11 1.3	23.5	147 44 51.2	−2 0 14.5
24.0	63 11 44.5	4 42 1.9	24.0	107 32 44.5	1 39 21.6	24.0	154 31 40.6	2 32 36.4
24.5	69 9 23.8	4 25 34.5	24.5	113 48 39.8	1 6 9.8	24.5	161 24 50.2	3 3 13.1
25.0	75 8 30.0	4 6 9.4	25.0	120 9 5.7	+0 31 47.0	25.0	168 24 6.0	3 31 30.0
25.5	81 9 28.8	3 43 55.3	25.5	126 34 17.5	−0 3 24.4	25.5	175 29 3.7	3 56 53.1
26.0	87 12 43.5	+3 19 2.4	26.0	133 4 25.6	−0 38 58.5	26.0	182 39 9.2	−4 18 49.6
26.5	93 18 35.2	2 51 42.9	26.5	139 39 34.6	1 14 26.9	26.5	189 53 39.3	4 36 49.4
27.0	99 27 22.1	2 22 11.1	27.0	146 19 43.4	1 49 19.2	27.0	197 11 42.7	4 50 26.9
27.5	105 39 19.1	1 50 43.4	27.5	153 4 44.6	2 23 3.4	27.5	204 32 22.7	4 59 21.7
28.0	111 54 38.8	1 17 38.7	28.0	159 54 24.9	2 55 6.4	28.0	211 54 38.9	5 3 20.0
28.5	118 13 30.6	+0 43 18.3	28.5	166 48 25.3	−3 24 54.7	28.5	219 17 29.9	−5 2 15.6
29.0	124 36 1.1	+0 8 5.6	29.0	173 46 21.1	3 51 55.9	29.0	226 39 56.5	4 56 9.8
29.5	131 2 13.9	−0 27 33.7	29.5	180 47 43.7	4 15 39.7	29.5	234 1 3.5	4 45 11.0
30.0	137 32 10.4	1 3 12.0	30.0	187 51 59.8	4 35 38.4	30.0	241 20 1.9	4 29 34.5
30.5	144 5 48.8	1 38 20.1	30.5	194 58 35.1	4 51 28.4	30.5	248 36 10.7	4 9 41.2
31.0	150 43 5.6	−2 12 28.0	31.0	202 6 53.2	−5 2 50.6	31.0	255 48 57.4	−3 45 56.8
31.5	157 23 55.1	−2 45 5.1	31.5	209 16 18.5	−5 9 31.4	31.5	262 57 57.9	−3 18 50.9

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month	OCTOBER True Longitude	OCTOBER Latitude	Day of Month	NOVEMBER True Longitude	NOVEMBER Latitude	Day of Month	DECEMBER True Longitude	DECEMBER Latitude
	° ′ ″	° ′ ″		° ′ ″	° ′ ″		° ′ ″	° ′ ″
1.0	255 48 57.4	3 45 56.8	1.0	307 39 45.5	+0 38 21.7	1.0	343 57 42.1	+3 41 39.7
1.5	262 57 57.9	3 15 30.9	1.5	314 42 25.0	1 13 15.1	1.5	350 21 10.[illegible]	4 4 9.6
2.0	270 2 57.0	2 48 34.8	2.0	321 20 5.9	1 46 41.8	2.0	356 40 4.[illegible]	4 23 23.5
2.5	277 3 46.6	2 16 41.8	2.5	327 55 1.5	2 18 18.9	2.5	2 54 55.4	4 39 15.3
3.0	284 0 25.2	1 42 45.4	3.0	334 21 37.[illegible]	2 47 46.4	3.0	9 6 5.5	4 51 42.1
3.5	290 52 56.5	-1 7 39.2	3.5	340 46 17.7	+3 14 46.8	3.5	15 14 8.8	+5 0 38.4
4.0	297 41 28.1	-0 31 35.5	4.0	347 7 23.9	3 39 5.2	4.0	21 19 29.2	5 6 6.7
4.5	304 26 10.2	+0 3 14.4	4.5	353 25 17.0	4 0 28.9	4.5	27 22 30.6	5 8 6.7
5.0	311 7 24.5	0 39 20.3	5.0	359 40 15.8	4 18 47.6	5.0	33 23 35.1	5 6 40.8
5.5	317 44 52.7	1 13 54.0	5.5	5 52 37.2	4 33 33.0	5.5	39 23 3.0	5 1 52.6
6.0	324 19 16.3	+1 47 9.4	6.0	12 2 35.6	+4 45 39.1	6.0	45 21 22.0	+4 53 47.1
6.5	330 50 35.0	2 18 42.2	6.5	18 10 23.7	4 54 1.8	6.5	51 18 18.3	4 42 30.9
7.0	337 19 0.4	2 48 10.5	7.0	24 16 12.1	4 58 58.9	7.0	57 14 36.7	4 29 11.6
7.5	343 44 37.0	3 15 14.7	7.5	30 20 10.3	5 0 30.3	7.5	63 10 20.7	4 10 58.8
8.0	350 7 31.4	3 39 37.5	8.0	36 22 26.7	4 58 38.1	8.0	69 5 43.2	3 51 3.2
8.5	356 27 47.7	+4 1 4.4	8.5	42 23 8.9	+4 53 26.0	8.5	75 0 36.3	+3 28 36.7
9.0	2 45 25.7	4 19 23.7	9.0	48 22 24.8	4 44 59.5	9.0	80 56 12.3	3 3 52.8
9.5	9 0 36.4	4 34 26.1	9.5	54 20 22.7	4 33 25.9	9.5	86 51 43.8	2 37 6.3
10.0	15 13 12.9	4 46 5.0	10.0	60 17 11.9	4 18 54.1	10.0	92 47 44.3	2 8 32.9
10.5	21 23 20.2	4 54 16.6	10.5	66 13 3.5	4 1 34.2	10.5	98 44 28.3	1 38 29.5
11.0	27 31 1.6	+4 58 59.7	11.0	72 8 10.1	+3 41 37.8	11.0	104 42 11.6	+1 7 13.8
11.5	33 36 21.7	5 0 15.1	11.5	78 2 46.7	3 19 17.3	11.5	110 41 12.0	0 35 4.5
12.0	39 39 27.1	4 58 5.8	12.0	83 57 10.9	2 54 46.4	12.0	116 41 49.0	+0 2 20.5
12.5	45 40 26.7	4 52 36.9	12.5	89 51 43.2	2 28 19.4	12.5	122 44 24.1	-0 30 37.3
13.0	51 39 32.4	4 43 55.1	13.0	95 46 40.6	2 0 11.1	13.0	128 49 20.8	1 3 29.1
13.5	57 36 30.1	+4 32 8.5	13.5	101 42 47.2	+1 30 37.5	13.5	134 57 4.4	1 35 53.6
14.0	63 31 4.8	4 17 26.2	14.0	107 40 14.2	0 59 54.9	14.0	141 8 2.0	2 7 29.0
14.5	69 25 10.9	3 59 58.5	14.5	113 39 [illegible]	+0 25 20.1	14.5	147 22 42.1	2 37 53.1
15.0	75 22 42.1	3 39 56.3	15.0	119 41 [illegible]	0 3 48.8	15.0	153 41 33.8	3 6 43.2
15.5	81 17 6.1	3 17 31.3	15.5	125 40 41.6	0 36 13.4	15.5	160 5 6.7	3 33 35.7
16.0	87 22 54.2	+2 52 55.8	16.0	131 45 12.5	-1 8 11.9	16.0	166 33 49.0	3 58 6.7
16.5	93 7 40.1	2 26 22.7	16.5	137 5 4[illegible]	1 40 21.4	16.5	173 8 7.5	4 19 52.1
17.0	99 5 0.1	1 58 5.5	17.0	144 27 4.6	2 11 37.7	17.0	179 48 25.9	4 38 27.6
17.5	105 4 32.4	1 28 18.7	17.5	150 51 0.8	2 41 35.0	17.5	186 35 3.9	4 53 28.9
18.0	111 6 36.8	0 57 17.6	18.0	157 21 11.2	3 9 56.1	18.0	193 28 24.9	5 4 32.9
18.5	117 12 54.4	+0 25 [illegible]	18.5	16[illegible] 5.8	-3 36 14.2	18.5	200 28 5.0	5 11 18.2
19.0	123 23 5.5	0 7 [illegible]	19.0	170 42 10.0	4 0 1.2	19.0	207 34 31.6	5 13 25.6
19.5	129 38 11.2	0 40 1[illegible]	19.5	177 13 41.5	4 20 45.1	19.5	214 47 21.4	5 10 40.0
20.0	135 58 4[illegible]	1 13 15.[illegible]	20.0	184 12 48.4	4 38 5.8	20.0	222 6 10.1	5 2 51.2
20.5	142 25 [illegible]	1 45 47.2	20.5	191 32 27.8	4 51 26.0	20.5	229 30 21.9	4 49 55.4
21.0	148 58 [illegible]	2 17 [illegible]	21.0	19[illegible] 33 24.1	-5 0 22.3	21.0	236 59 9.4	4 31 36.2
21.5	155 39 21.[illegible]	2 47 4[illegible]	21.5	206 14 7.5	5 4 32.1	21.5	244 31 34.5	4 9 5.8
22.0	162 2[illegible]	3 16 [illegible]	22.0	213 40 54.5	5 3 37.7	22.0	252 6 30.0	3 41 44.6
22.5	169 22 15.4	3 42 21.1	22.5	221 12 49.1	4 57 28.6	22.5	25[illegible] 42 42.8	3 10 22.2
23.0	176 24 4[illegible]	4 5 31.1	23.0	228 48 35.7	4 46 2.3	23.0	267 18 36.2	2 35 35.3
23.5	18[illegible] 14 [illegible]	4 25 22.5	23.5	236 27 7.6	4 29 25.4	23.5	27[illegible] 53 53.1	-1 58 7.0
24.0	[illegible]	4 40 54.5	24.0	244 6 40.2	4 7 54.3	24.0	28[illegible] 26 [illegible]	1 18 44.8
24.5	[illegible]	4 52 [illegible]	24.5	251 46 19.[illegible]	3 41 54.4	24.5	2[illegible] 55 8.0	0 38 17.7
25.0	[illegible]	4 58 55.4	25.0	25[illegible] 24 11.4	3 11 [illegible]	25.0	2[illegible] 19 18.[illegible]	+0 2 25.3
25.5	[illegible]	[illegible] 55.4	25.5	[illegible] 59 6.2	2 38 4[illegible]	25.5	[illegible]	0 42 57.6
26.0	[illegible] 41 1[illegible]	[illegible]	26.0	[illegible] 29 54.1	2 1 7.1	26.0	[illegible]	+1 21 36.6
26.5	[illegible]	[illegible]	26.5	[illegible] 55 [illegible]	1 25 40.2	26.5	[illegible]	1 59 44.7
27.0	[illegible]	[illegible]	27.0	[illegible] 15 [illegible]	0 47 14.2	27.0	[illegible]	2 35 [illegible]
27.5	[illegible]	[illegible]	27.5	[illegible] 28 [illegible]	0 8 11.1	27.5	[illegible]	3 5 [illegible]
28.0	[illegible]	[illegible]	28.0	301 15 4[illegible]	+0 29 42.4	28.0	[illegible] 33 41.[illegible]	3 34 17.2
28.5	[illegible]	[illegible]	28.5	310 [illegible]	+1 6 [illegible]	28.5	[illegible] 12 [illegible]	[illegible]
29.0	[illegible] 44 [illegible]	[illegible]	29.0	317 2[illegible]	1 42 [illegible]	29.0	[illegible] 44 [illegible]	4 21 [illegible]
29.5	[illegible]	[illegible]	29.5	324 15 0.6	2 16 [illegible]	29.5	[illegible] 11 [illegible]	4 33 50.0
30.0	[illegible] 12 [illegible]	[illegible]	30.0	[illegible] 55 4.2	2 47 25.[illegible]	30.0	5 32 [illegible]	4 54 21.0
30.5	[illegible]	[illegible]	30.5	[illegible]	3 1[illegible]	30.5	11 48 [illegible]	5 5 8.7
31.0	294 27 [illegible]	0 33 [illegible]	31.0	343 5[illegible] 42.1	+3 4[illegible]	31.0	18 0 6.2	+5 12 24.6
31.5	301 11 [illegible]	[illegible]	31.5	[illegible] 10.[illegible]	+4 4 9.[illegible]	31.5	24 [illegible] 45.2	+5 15 41.[illegible]

FOR GREENWICH MEAN NOON.

THE MOON'S EQUATOR.

Date.		i Inclination to the Earth's Equator.	Δ Ascending Node on Earth's Equator to Ascending Node on Ecliptic.	Ω' Ascending Node on Earth's Equator.	☾ Mean Longitude of the Moon.
		° ′	° ′	° ′	° ′
Jan.	0	22 23.4	134 43.9	2 38.5	242 17.4
	10	22 24.0	134 10.8	2 40.0	14 3.2
	20	22 24.6	133 37.7	2 41.5	145 49.1
	30	22 25.2	133 4.6	2 42.9	277 34.9
Feb.	9	22 25.8	132 31.5	2 44.4	49 20.7
	19	22 26.4	131 58.3	2 45.9	181 6.6
March	1	22 27.0	131 25.3	2 47.3	312 52.4
	11	22 27.6	130 52.2	2 48.7	84 38.2
	21	22 28.3	130 19.2	2 50.1	216 24.1
	31	22 28.9	129 46.1	2 51.5	348 9.9
April	10	22 29.5	129 13.0	2 52.9	119 55.7
	20	22 30.1	128 40.0	2 54.2	251 41.6
	30	22 30.8	128 7.0	2 55.5	23 27.4
May	10	22 31.4	127 34.0	2 56.9	155 13.2
	20	22 32.1	127 1.1	2 58.2	286 59.1
	30	22 32.7	126 28.1	2 59.5	58 44.9
June	9	22 33.3	125 55.2	3 0.7	190 30.7
	19	22 33.9	125 22.3	3 1.9	322 16.6
	29	22 34.6	124 49.4	3 3.2	94 2.4
July	9	22 35.3	124 16.5	3 4.4	225 48.2
	19	22 36.0	123 43.6	3 5.7	357 34.1
	29	22 36.7	123 10.8	3 6.8	129 19.9
Aug.	8	22 37.4	122 38.0	3 7.9	261 5.8
	18	22 38.1	122 5.2	3 9.1	32 51.6
	28	22 38.8	121 32.4	3 10.2	164 37.4
Sept.	7	22 39.5	120 59.6	3 11.3	296 23.3
	17	22 40.2	120 26.9	3 12.3	68 9.1
	27	22 40.9	119 54.1	3 13.4	199 54.9
Oct.	7	22 41.7	119 21.4	3 14.4	331 40.8
	17	22 42.4	118 48.6	3 15.5	103 26.6
	27	22 43.1	118 15.9	3 16.6	235 12.4
Nov.	6	22 43.8	117 43.3	3 17.5	6 58.3
	16	22 44.6	117 10.6	3 18.5	138 44.1
	26	22 45.3	116 37.9	3 19.4	270 30.0
Dec.	6	22 46.1	116 5.3	3 20.4	42 15.8
	16	22 46.8	115 32.7	3 21.4	174 1.6
	26	22 47.6	115 0.1	3 22.3	305 47.5
	36	22 48.3	114 27.5	3 23.1	77 33.3

Mean Solar Days.	Motion of ☾
	° ′
0.1	1 19.06
0.2	2 38.12
0.3	3 57.18
0.4	5 16.23
0.5	6 35.29
0.6	7 54.35
0.7	9 13.41
0.8	10 32.47
0.9	11 51.53
1.0	13 10.58
2.0	26 21.17
3.0	39 31.75
4.0	52 42.33
5.0	65 52.92
6.0	79 3.50
7.0	92 14.09
8.0	105 24.67
9.0	118 35.25
10.0	131 45.84
Hours.	° ′
1	0 32.94
2	1 5.88
3	1 38.82
4	2 11.76
5	2 44.70
6	3 17.65
7	3 50.59
8	4 23.53
9	4 56.47
10	5 29.41
11	6 2.35
12	6 35.29
13	7 8.23
14	7 41.17
15	8 14.11
16	8 47.06
17	9 20.00
18	9 52.94
19	10 25.88
20	10 58.82
21	11 31.76
22	12 4.70
23	12 37.64

TABLE FOR THE LIBRATION OF THE MOON.

Argument. $(\Omega - \lambda)$ or $(\Omega - \lambda - 180°)$.

$\Omega - \lambda$	$\Delta\lambda$	$\frac{1}{a}$	B		$\Omega - \lambda$	$\Delta\lambda$	$\frac{1}{a}$	B	
°	°		° ′	°	°	°		° ′	°
0	0 0	39	0 0 0	180	46	0 6	56	1 3 9	134
1	0 0	39	0 1 6	179	47	0 6	57	1 4 9	133
2	0 0	39	0 3 1	178	48	0 6	58	1 6 0	132
3	0 1	39	0 4 7	177	49	0 6	59	1 7 0	131
4	0 1	39	0 6 2	176	50	0 6	60	1 8 0	130
5	0 1	39	0 7 7	175	51	0 6	62	1 9 0	129
6	0 2	39	0 9 3	174	52	0 6	63	1 10 0	128
7	0 2	39	0 10 8	173	53	0 5	64	1 10 9	127
8	0 2	39	0 12 4	172	54	0 5	66	1 11 8	126
9	0 2	39	0 13 9	171	55	0 5	67	1 12 7	125
10	0 2	39	0 15 4	170	56	0 5	69	1 13 6	124
11	0 3	39	0 16 9	169	57	0 5	71	1 14 5	123
12	0 3	40	0 18 5	168	58	0 5	73	1 15 3	122
13	0 3	40	0 20 0	167	59	0 5	75	1 16 1	121
14	0 3	40	0 21 5	166	60	0 5	77	1 16 9	120
15	0 3	40	0 23 0	165	61	0 5	80	1 17 6	119
16	0 3	40	0 24 5	164	62	0 5	83	1 18 4	118
17	0 3	40	0 26 0	163	63	0 5	86	1 19 1	117
18	0 3	41	0 27 4	162	64	0 5	89	1 19 8	116
19	0 4	41	0 28 9	161	65	0 4	92	1 20 4	115
20	0 4	41	0 30 4	160	66	0 4	95	1 21.1	114
21	0 4	41	0 31 8	159	67	0 4	99	1 21 7	113
22	0 4	42	0 33 2	158	68	0 4	103	1 22 3	112
23	0 4	42	0 34 7	157	69	0 4	108	1 22 9	111
24	0 4	42	0 36 1	156	70	0 4	113	1 23 4	110
25	0 4	43	0 37 5	155	71	0 4	119	1 23 9	109
26	0 5	43	0 38 9	154	72	0 4	125	1 24 4	108
27	0 5	43	0 40 3	153	73	0 4	132	1 24 9	107
28	0 5	44	0 41 7	152	74	0 3	141	1 25 3	106
29	0 5	44	0 43 1	151	75	0 3	150	1 25 7	105
30	0 5	45	0 44 4	150	76	0 3	160	1 26 1	104
31	0 5	45	0 45 7	149	77	0 3	172	1 26 5	103
32	0 5	46	0 47 0	148	78	0 2	186	1 26 8	102
33	0 5	46	0 48 4	147	79	0 2	202	1 27 1	101
34	0 5	47	0 49 7	146	80	0 2	222	1 27 4	100
35	0 5	47	0 51 0	145	81	0 2	247	1 27 7	99
36	0 5	48	0 52 2	144	82	0 2	278	1 27 9	98
37	0 5	48	0 53 4	143	83	0 1	318	1 28 1	97
38	0 6	49	0 54 7	142	84	0 1	370	1 28 3	96
39	0 6	50	0 55 9	141	85	0 1	440	1 28 5	95
40	0 6	50	0 57 1	140	86	0 1	555	1 28 6	94
41	0 6	51	0 58 3	139	87	0 1	740	1 28 7	93
42	0 6	52	0 59 4	138	88	0 0	1110	1 28 7	92
43	0 6	53	1 0 6	137	89	0 0	2220	1 28 8	91
44	0 6	54	1 1 7	136	90	0 0	∞	1 28 8	90
45	0 6	55	1 2 8	135					
	$\Delta\lambda$	$\frac{1}{a}$	B	$\Omega - \lambda$		$\Delta\lambda$	$\frac{1}{a}$	B	$\Omega - \lambda$

$\Delta\lambda$ has the sign of tan $(\lambda - \Omega)$
a has the sign of cos $(\Omega - \lambda)$
B has the sign of sin $(\Omega - \lambda)$

FOR GREENWICH MEAN NOON.

Date.		Apparent Obliquity of the Ecliptic. (Hansen.)	Equation of Equinoxes. (Hansen.) In Longitude.	Equation of Equinoxes. (Hansen.) In R. A.	Precession of Equinoxes in Longitude.	The Sun's Aberration.	The Sun's Hor. Par.	Mean Longitude of Moon's Ascending Node.
		° ′ ″	″	s	″	″	″	° ′
Jan.	0	23 27 15.71	+ 12.02	+ 0.735	0.00	− 20.80	9.00	317 9.9
	10	15.73	12.52	0.766	1.38	20.79	9.00	316 38.1
	20	15.81	12.90	0.789	2.75	20.77	8.99	316 6.4
	30	15.91	13.14	0.804	4.13	20.74	8.98	315 34.6
Feb.	9	16.03	13.24	0.810	5.50	20.71	8.96	315 2.8
	19	23 27 16.14	+ 13.20	+ 0.807	6.88	− 20.67	8.94	314 31.1
March	1	16.21	13.01	0.796	8.26	20.63	8.92	313 59.3
	11	16.22	12.75	0.780	9.63	20.57	8.90	313 27.5
	21	16.17	12.44	0.761	11.01	20.51	8.87	312 55.7
	31	16.06	12.13	0.742	12.38	20.45	8.85	312 24.0
April	10	23 27 15.89	+ 11.87	+ 0.726	13.76	− 20.39	8.82	311 52.2
	20	15.66	11.73	0.717	15.14	20.34	8.80	311 20.4
	30	15.40	11.69	0.715	16.51	20.29	8.78	310 48.6
May	10	15.15	11.79	0.721	17.89	20.24	8.76	310 16.9
	20	14.91	12.04	0.736	19.26	20.19	8.74	309 45.1
	30	23 27 14.70	+ 12.40	+ 0.758	20.64	− 20.16	8.72	309 13.3
June	9	14.52	12.85	0.786	22.02	20.13	8.71	308 41.6
	19	14.41	13.35	0.816	23.39	20.11	8.71	308 9.8
	29	14.34	13.87	0.848	24.77	20.11	8.70	307 38.0
July	9	14.35	14.34	0.877	26.14	20.10	8.70	307 6.2
	19	23 27 14.39	+ 14.72	+ 0.900	27.52	− 20.12	8.71	306 34.5
	29	14.47	14.99	0.917	28.90	20.14	8.72	306 2.7
Aug.	8	14.56	15.14	0.926	30.27	20.17	8.73	305 30.9
	18	14.66	15.15	0.927	31.65	20.20	8.75	304 59.1
	28	14.73	15.03	0.919	33.02	20.24	8.77	304 27.4
Sept.	7	23 27 14.78	+ 14.79	+ 0.905	34.40	− 20.29	8.79	303 55.6
	17	14.75	14.50	0.887	35.78	20.35	8.81	303 23.8
	27	14.67	14.17	0.867	37.15	20.41	8.83	302 52.1
Oct.	7	14.53	13.86	0.848	38.53	20.47	8.86	302 20.3
	17	14.33	13.61	0.832	39.90	20.53	8.88	301 48.5
	27	23 27 14.07	+ 13.46	+ 0.823	41.28	− 20.59	8.91	301 16.7
Nov.	6	13.80	13.46	0.823	42.66	20.64	8.93	300 45.0
	16	13.55	13.62	0.833	44.03	20.69	8.95	300 13.2
	26	13.28	13.91	0.851	45.41	20.73	8.97	299 41.4
Dec.	6	13.08	14.31	0.875	46.78	20.76	8.98	299 9.7
	16	23 27 12.94	+ 14.79	+ 0.905	48.16	− 20.78	8.99	298 37.9
	26	12.84	15.33	0.938	49.54	20.79	9.00	298 6.1
	36	23 27 12.82	+ 15.83	+ 0.968	50.91	− 20.79	9.00	297 34.3

Mean Obliquity, 1897.0,	23° 27′ 9″.42 (Hansen).		Daily Motion of ☊
Mean Obliquity, 1897.0,	23° 27′ 9″.15 (Peters).		−3′.177
Precession for 1897	50″.2631	log 1.70125	
Precession in a Solar Day	0″.1377	log 9.13867	
Precession in a Sidereal Day	0″.1372	log 9.13748	
Sun's Mean Equatorial Horizontal Parallax	8″.848	log 0.94685	

PART II

ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF WASHINGTON.

FORMULÆ FOR THE REDUCTION OF THE POSITIONS OF THE FIXED STARS, USING THE NOTATION OF BESSEL, AND THE CONSTANTS OF PETERS AND STRUVE.

NOTATION.

τ, the time, reckoned in units of one year, from the beginning of the Besselian fictitious year, (1896, December $30^d.376$ = 1897, January $0^d.0 - 0^d.624$, Washington mean time).

α_0, δ_0, the star's mean right ascension and declination at the beginning of the fictitious year,

α, δ, the star's apparent right ascension and declination at the time τ,

μ, μ', the annual proper motion in right ascension and declination,

$\odot$, the sun's true longitude,

Ω, the longitude of the moon's ascending node,

ω, the obliquity of the ecliptic,

Γ, the longitude of the sun's perigee,

Γ', the longitude of the moon's perigee,

☾, the moon's mean longitude.

BESSELIAN STAR-NUMBERS.

$$\begin{aligned} A = \tau & - 0.34251 \sin \Omega & & - 0.00011 \sin (3 \odot - \Gamma) \\ & + 0.00410 \sin 2 \Omega & & - 0.00005 \sin 2 (\odot - \Omega) \\ & - 0.02519 \sin 2 \odot & & + 0.00010 \sin 2 (\odot - \Gamma') \\ & + 0.00293 \sin (\odot + 81^\circ\, 59') & & + 0.00009 \sin (2\Gamma' - \Omega) \\ & + 0.00025 \sin (2 \odot - \Omega) & & + 0.00005 \cos \Gamma' \\ & - 0.00405 \sin 2 \text{☾} & & + 0.00004 \sin 2 \Gamma' \\ & + 0.00135 \sin (\text{☾} - \Gamma') & & \end{aligned}$$

$$\begin{aligned} B = & - 9''.2240 \cos \Omega & & - 0''.0027 \cos (3 \odot - \Gamma) \\ & + 0.0895 \cos 2 \Omega & & + 0.0067 \cos (2 \odot - \Omega) \\ & - 0.5506 \cos 2 \odot & & + 0.0024 \cos (2 \Gamma' - \Omega) \\ & - 0.0092 \cos (\odot + 281^\circ\, 10') & & - 0.0023 \sin \Gamma' \\ & - 0.0885 \cos 2 \text{☾} & & + 0.0008 \cos 2 \Gamma' \end{aligned}$$

$$C = - 20''.4451 \cos \omega \cos \odot$$
$$D = - 20.4451 \sin \odot$$
$$E = - 0.0451 \sin \Omega + 0''.0014 \sin 2 \Omega - 0''.0032 \sin 2 \odot$$

BESSEL's *Star-Constants*

$a = 3^s.07267 + 1^s.33682 \sin \alpha_0 \tan \delta_0$ = precession in right ascension

$b = \frac{1}{15} \cos \alpha_0 \tan \delta_0$

$c = \frac{1}{15} \cos \alpha_0 \sec \delta_0$

$d = \frac{1}{15} \sin \alpha_0 \sec \delta_0$

$a' = 20''.0523 \cos \alpha_0$ = precession in declination

$b' = - \sin \alpha_0$

$c' = \tan \omega \cos \delta_0 - \sin \alpha_0 \sin \delta_0$

$d' = \cos \alpha_0 \sin \delta_0$

Reduction to Apparent Position.

$$\alpha = \alpha_0 + \tau\mu + Aa + Bb + Cc + Dd + \tfrac{1}{15} E \qquad \text{(in time)}$$
$$\delta = \delta_0 + \tau\mu' + Aa' + Bb' + Cc' + Dd' \qquad \text{(in arc)}$$

INDEPENDENT STAR-NUMBERS.

$$f = 46''.0900\, A + E \text{ (in arc)} = 3^s.07267\, A + \tfrac{1}{15} E \qquad \text{(in time)}$$

$$g \sin G = B \qquad h \sin H = C$$
$$g \cos G = 20''.0523\, A \qquad h \cos H = D \qquad i = C \tan \omega$$

Reduction to Apparent Position.

$$\alpha = \alpha_0 + f + \tau\mu + \tfrac{1}{15} g \sin (G + \alpha_0) \tan \delta_0 + \tfrac{1}{15} h \sin (H + \alpha_0) \sec \delta_0 \qquad \text{(in time)}$$
$$\delta = \delta_0 + \tau\mu' + g \cos (G + \alpha_0) + h \cos (H + \alpha_0) \sin \delta_0 + i \cos \delta_0 \qquad \text{(in arc)}$$

NOTES.—(1) The independent star-numbers are more convenient, when only one or two apparent positions of a star are required, or when BESSEL's star-constants are not known with sufficient accuracy. Otherwise, the Besselian star-numbers are more convenient.

(2) In using the star-constants of the *British Association Catalogue*, $a, b, c, d, a', b', c', d'$, must be changed to $c, d, a, b, -c', -d', -a', -b'$, respectively

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day and Hour		Log A	Log B	Log C	Log D
Jan.	0	+9.3803	−0.7899	0.5581	+1.3024
	1	9.3906	0.7879	0.5957	1.3008
	2	9.4008	0.7892	0.6302	1.2990
	3	9.4102	0.7909	0.6620	1.2972
	4	9.4181	0.7935	0.6915	1.2952
h (7.0)	5	+9.4250	−0.7966	−0.7190	+1.2930
	6	9.4300	0.7996	0.7447	1.2907
	7	9.4356	0.8020	0.7689	1.2882
	8	9.4364	0.8033	0.7916	1.2856
	9	9.4389	0.8034	0.8132	1.2828
	10	+9.4419	−0.8024	−0.8334	+1.2799
	11	9.4457	0.8005	0.8525	1.2768
	12	9.4507	0.7983	0.8708	1.2735
	13	9.4569	0.7963	0.8883	1.2701
	14	9.4640	0.7951	0.9051	1.2665
	15	+9.4716	−0.7951	−0.9211	+1.2627
	16	9.4792	0.7964	0.9364	1.2588
	17	9.4862	0.7980	0.9510	1.2547
	18	9.4922	0.8011	0.9650	1.2504
	19	9.4971	0.8037	0.9783	1.2460
h (8.0)	20	+9.5008	−0.8069	−0.9909	+1.2414
	21	9.5037	0.8113	1.0031	1.2366
	22	9.5061	0.8127	1.0149	1.2316
	23	9.5086	0.8127	1.0264	1.2264
	24	9.5117	0.8117	1.0375	1.2210
	25	+9.5155	−0.8100	−1.0482	+1.2154
	26	9.5204	0.8081	1.0585	1.2096
	27	9.5262	0.8068	1.0684	1.2036
	28	9.5327	0.8060	1.0779	1.1973
	29	9.5398	0.8069	1.0871	1.1908
	30	+9.5454	−0.8088	−1.0959	+1.1841
	31	9.5509	0.8117	1.1044	1.1772
Feb.	1	9.5552	0.8152	1.1126	1.1700
	2	9.5584	0.8188	1.1205	1.1625
	3	9.5605	0.8219	1.1281	1.1547
h (9.0)	4	+9.5619	−0.8249	1.1353	+1.1467
	5	9.5629	0.8268	1.1423	1.1384
	6	9.5640	0.8286	1.1491	1.1298
	7	9.5657	0.8304	1.1557	1.1209
	8	9.5682	0.8317	1.1621	1.1117
	9	+9.5717	−0.8320	−1.1684	+1.1022
	10	9.5760	0.8343	1.1744	1.0922
	11	[illegible]	[illegible]	[illegible]	1.0819
	12	9.5858	[illegible]	1.1857	1.0712
	13	9.5925	0.8319	1.1909	1.0601
	14	+9.5[illegible]	−0.8248	−1.1958	+1.0486
	15	+9.[illegible]	−0.8282	−1.2006	+1.0365

Solar Day and Hour		Log A	Log B	Log C	Log D
Feb.	15	+9.5977	0.8282	1.2006	+1.0365
	16	9.5990	0.8314	1.2053	1.0240
	17	9.6015	0.8339	1.2098	1.0111
	18	9.6026	0.8354	1.2142	0.9978
h (10.0)	19	9.6036	0.8357	1.2185	0.9840
	20	+9.6049	0.8349	−1.2226	+0.9696
	21	9.6069	0.8333	1.2265	0.9544
	22	9.6097	0.8313	1.2300	0.9384
	23	9.6134	0.8295	1.2336	0.9217
	24	9.6176	0.8284	1.2368	0.9042
	25	+9.6222	0.8282	−1.2399	+0.8858
	26	9.6266	0.8293	1.2429	0.8665
	27	9.6306	0.8314	1.2458	0.8462
	28	9.6338	0.8341	1.2485	0.8249
Mar.	1	9.6360	0.8370	1.2511	0.8024
	2	+9.6373	−0.8396	−1.2536	+0.7785
	3	9.6375	0.8414	1.2559	0.7530
	4	9.6370	0.8421	1.2580	0.7258
	5	9.6352	0.8416	1.2599	0.6966
h (11.0)	6	9.6357	0.8400	1.2617	0.6651
	7	+9.6399	−0.8378	−1.2634	+0.6313
	8	9.6420	0.8353	1.2649	0.5942
	9	9.6448	0.8332	1.2663	0.5537
	10	9.6482	0.8319	1.2676	0.5088
	11	9.6519	0.8317	1.2688	0.4586
	12	+9.6555	0.8325	1.2699	+0.4018
	13	9.6586	0.8344	1.2708	0.3364
	14	9.6611	0.8367	1.2715	0.2591
	15	9.6628	0.8390	1.2721	0.1650
	16	9.6638	0.8408	1.2725	0.0446
	17	+9.6644	0.8417	−1.2728	+9.8770
	18	9.6648	0.8414	1.2730	9.6010
	19	9.6655	0.8400	1.2731	+8.6530
	20	9.6667	0.8376	1.2731	−9.4805
h (12.0)	21	9.6685	0.8346	1.2729	9.8807
	22	+9.6718	−0.8317	1.2726	−0.0865
	23	9.6745	0.8292	1.2721	0.1961
	24	9.6782	0.8277	1.2715	0.2356
	25	9.6820	0.8272	1.2708	0.3164
	26	9.6854	0.8279	1.2700	0.3844
	27	+9.6883	0.8294	1.2691	−0.4430
	28	9.6904	0.8312	1.2680	0.4944
	29	9.6917	0.8329	1.2668	0.5402
	30	9.6923	0.8353	1.2654	0.5815
	31	9.6925	0.8356	1.2639	0.6192
Apr.	1	+9.6925	0.8[illegible]	−1.2623	−0.6537
	2	+9.6[illegible]	0.8[illegible]	−1.2605	0.6855

$B = + \sigma m_0$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.	Solar Day. (Sid. Hour.)	Log A.	Log B.	Log C.	Log D.
Apr. 1	+9.6925	−0.8326	−1.2623	−0.6537	May 17	+9.7887	−0.7503	−1.0033	−1.2365
2	9.6929	0.8302	1.2605	0.6855	18	9.7925	0.7478	0.9916	1.2411
3	9.6938	0.8269	1.2586	0.7150	19	9.7962	0.7467	0.9796	1.2455
h 4	9.6953	0.8233	1.2566	0.7424	h 20	9.7995	0.7470	0.9672	1.2497
(13.0) 5	9.6976	0.8198	1.2545	0.7681	(16.0) 21	9.8024	0.7481	0.9544	1.2537
6	+9.7005	−0.8170	−1.2523	−0.7922	22	+9.8047	−0.7495	−0.9409	−1.2576
7	9.7038	0.8152	1.2499	0.8150	23	9.8063	0.7506	0.9267	1.2614
8	9.7072	0.8147	1.2473	0.8364	24	9.8076	0.7508	0.9118	1.2650
9	9.7102	0.8151	1.2445	0.8569	25	9.8085	0.7497	0.8962	1.2685
10	9.7127	0.8163	1.2416	0.8761	26	9.8095	0.7472	0.8800	1.2718
11	+9.7147	−0.8177	−1.2386	−0.8944	27	+9.8108	−0.7434	−0.8632	−1.2749
12	9.7159	0.8188	1.2354	0.9118	28	9.8125	0.7389	0.8456	1.2779
13	9.7168	0.8190	1.2321	0.9284	29	9.8148	0.7342	0.8272	1.2808
14	9.7174	0.8181	1.2286	0.9443	30	9.8176	0.7300	0.8078	1.2835
15	9.7182	0.8159	1.2250	0.9595	31	9.8208	0.7268	0.7874	1.2860
16	+9.7193	−0.8127	−1.2213	−0.9741	June 1	+9.8242	−0.7252	−0.7658	−1.2884
17	9.7211	0.8087	1.2174	0.9881	2	9.8275	0.7250	0.7430	1.2907
18	9.7235	0.8045	1.2133	1.0015	3	9.8305	0.7261	0.7188	1.2929
h 19	9.7266	0.8006	1.2090	1.0144	h 4	9.8330	0.7280	0.6930	1.2950
(14.0) 20	9.7302	0.7976	1.2046	1.0268	(17.0) 5	9.8351	0.7299	0.6655	1.2969
21	+9.7339	−0.7958	−1.2000	−1.0387	6	+9.8367	−0.7313	−0.6360	−1.2987
22	9.7374	0.7952	1.1952	1.0501	7	9.8381	0.7316	0.6042	1.3004
23	9.7405	0.7956	1.1903	1.0611	8	9.8394	0.7305	0.5698	1.3019
24	9.7430	0.7967	1.1852	1.0717	9	9.8408	0.7279	0.5323	1.3032
25	9.7448	0.7978	1.1799	1.0820	10	9.8426	0.7242	0.4912	1.3044
26	+9.7460	−0.7984	−1.1744	−1.0920	11	+9.8448	−0.7199	−0.4455	−1.3055
27	9.7467	0.7980	1.1687	1.1016	12	9.8476	0.7158	0.3944	1.3065
28	9.7472	0.7963	1.1628	1.1108	13	9.8509	0.7123	0.3364	1.3075
29	9.7478	0.7933	1.1567	1.1196	14	9.8543	0.7102	0.2693	1.3084
30	9.7489	0.7894	1.1504	1.1281	15	9.8578	0.7096	0.1897	1.3091
May 1	+9.7506	−0.7848	−1.1438	−1.1363	16	+9.8611	−0.7106	−0.0921	−1.3096
2	9.7529	0.7802	1.1370	1.1443	17	9.8640	0.7127	9.9658	1.3100
3	9.7558	0.7762	1.1300	1.1521	18	9.8663	0.7154	9.7870	1.3103
4	9.7591	0.7733	1.1229	1.1596	h 19	9.8681	0.7180	−9.4768	1.3105
h 5	9.7626	0.7717	1.1156	1.1669	(18.0) 20	9.8695	0.7197	+8.0899	1.3105
(15.0) 6	+9.7658	−0.7714	−1.1080	−1.1739	21	+9.8706	−0.7202	+9.5109	−1.3104
7	9.7687	0.7721	1.1001	1.1806	22	9.8715	0.7192	9.8037	1.3102
8	9.7711	0.7732	1.0919	1.1871	23	9.8727	0.7168	9.9769	1.3099
9	9.7729	0.7742	1.0834	1.1934	24	9.8742	0.7135	0.1003	1.3096
10	9.7742	0.7744	1.0745	1.1995	25	9.8761	0.7097	0.1962	1.3092
11	+9.7753	−0.7735	−1.0654	−1.2054	26	+9.8785	−0.7063	+0.2746	−1.3086
12	9.7764	0.7713	1.0559	1.2111	27	9.8813	0.7039	0.3409	1.3078
13	9.7778	0.7678	1.0461	1.2166	28	9.8843	0.7030	0.3982	1.3068
14	9.7797	0.7634	1.0360	1.2219	29	9.8873	0.7037	0.4488	1.3057
15	9.7821	0.7586	1.0255	1.2269	30	9.8901	0.7058	0.4940	1.3045
16	+9.7852	−0.7540	−1.0146	−1.2318	July 1	+9.8925	−0.7089	+0.5348	−1.3032
17	+9.7887	−0.7503	−1.0033	−1.2365	2	+9.8944	−0.7124	+0.5720	−1.3018

$E = +0^s.03$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day (and Hour)		Log A	Log B	Log C	Log D	Solar Day (and Hour)		Log A	Log B	Log C	Log D
July	1	+9.8925	−0.7089	+0.5348	−1.3032	Aug	16	+9.9657	−0.7472	+1.1838	−1.0744
	2	9.8944	0.7124	0.5720	1.3018		17	9.9662	0.7458	1.1889	1.0640
	3	9.8940	0.7154	0.6062	1.3003		18	9.9670	0.7436	1.1939	1.0532
h	4	9.8971	0.7174	0.6377	1.2986	h	19	9.9682	0.7412	1.1987	1.0420
(18.0)	5	9.8982	0.7151	0.6670	1.2968	(22.0)	20	9.9697	0.7393	1.2033	1.0304
	6	+9.8994	0.7172	+0.6943	−1.2949		21	+9.9715	−0.7385	+1.2077	−1.0183
	7	9.9008	0.7152	0.7199	1.2929		22	9.9733	0.7391	1.2120	1.0057
	8	9.9026	0.7122	0.7440	1.2907		23	9.9752	0.7410	1.2161	0.9926
	9	9.9048	0.7092	0.7667	1.2884		24	9.9768	0.7441	1.2200	0.9789
	10	9.9074	0.7066	0.7881	1.2860		25	9.9780	0.7478	1.2239	0.9647
	11	+9.9103	−0.7053	+0.8084	−1.2834		26	+9.9789	−0.7515	+1.2275	−0.9499
	12	9.9133	0.7055	0.8277	1.2807		27	9.9795	0.7544	1.2309	0.9345
	13	9.9161	0.7074	0.8461	1.2779		28	9.9798	0.7563	1.2342	0.9184
	14	9.9187	0.7104	0.8636	1.2749		29	9.9801	0.7567	1.2373	0.9016
	15	9.9208	0.7143	0.8803	1.2717		30	9.9805	0.7558	1.2403	0.8839
	16	+9.9224	−0.7182	+0.8963	−1.2684		31	+9.9811	−0.7537	+1.2432	−0.8652
	17	9.9235	0.7214	0.9116	1.2650	Sept.	1	9.9821	0.7510	1.2460	0.8455
	18	9.9244	0.7236	0.9263	1.2614		2	9.9835	0.7484	1.2487	0.8247
	19	9.9251	0.7241	0.9405	1.2577	h	3	9.9852	0.7464	1.2512	0.8029
h	20	9.9258	0.7233	0.9538	1.2539	(23.0)	4	9.9871	0.7456	1.2536	0.7797
(20.0)	21	+9.9268	−0.7214	+0.9668	−1.2499		5	+9.9890	0.7462	+1.2558	−0.7550
	22	9.9282	0.7188	0.9793	1.2457		6	9.9908	0.7481	1.2578	0.7288
	23	9.9300	0.7164	0.9913	1.2413		7	9.9923	0.7509	1.2596	0.7007
	24	9.9321	0.7147	1.0030	1.2367		8	9.9933	0.7541	1.2613	0.6705
	25	9.9345	0.7143	1.0143	1.2319		9	9.9940	0.7570	1.2629	0.6379
	26	+9.9369	−0.7155	+1.0251	−1.2270		10	+9.9943	−0.7591	+1.2644	−0.6026
	27	9.9392	0.7181	1.0355	1.2220		11	9.9944	0.7599	1.2659	0.5639
	28	9.9412	0.7218	1.0455	1.2168		12	9.9944	0.7593	1.2673	0.5213
	29	9.9428	0.7260	1.0551	1.2115		13	9.9946	0.7574	1.2686	0.4739
	30	9.9440	0.7300	1.0644	1.2060		14	9.9950	0.7545	1.2697	0.4204
	31	+9.9449	−0.7331	+1.0735	−1.2002		15	+9.9958	−0.7512	+1.2706	−0.3593
Aug.	1	9.9456	0.7349	1.0823	1.1942		16	9.9969	0.7482	1.2713	0.2879
	2	9.9463	0.7353	1.0908	1.1879		17	9.9983	0.7459	1.2718	0.2022
	3	9.9471	0.7343	1.0989	1.1814		18	9.9999	0.7449	1.2722	0.0954
h	4	9.9483	0.7324	1.1068	1.1747	h	19	0.0014	0.7453	1.2725	9.9528
(21.0)	5	+9.9498	−0.7300	+1.1145	−1.1678	(0.0)	20	+0.0028	−0.7469	+1.2728	−9.7383
	6	9.9518	0.7280	1.1219	1.1607		21	0.0039	0.7493	1.2730	−9.2965
	7	9.9540	0.7269	1.1291	1.1533		22	0.0047	0.7519	1.2731	+9.1767
	8	9.9564	0.7271	1.1361	1.1457		23	0.0052	0.7540	1.2730	9.6990
	9	9.9587	0.7289	1.1428	1.1378		24	0.0054	0.7550	1.2727	9.8894
	10	+9.9608	−0.7319	+1.1493	−1.1296		25	+0.0056	−0.7547	+1.2723	+0.0792
	11	9.9625	0.7358	1.1556	1.1212		26	0.0058	0.7530	1.2718	0.1900
	12	9.9637	0.7399	1.1616	1.1125		27	0.0062	0.7500	1.2712	0.2784
	13	9.9646	0.7435	1.1674	1.1035		28	0.0070	0.7461	1.2704	0.3528
	14	9.9651	0.7461	1.1730	1.0942		29	0.0081	0.7421	1.2695	0.4144
	15	+9.9654	−0.7474	+1.1785	−1.0845		30	+0.0096	−0.7385	+1.2685	+0.4690
	16	+9.9657	−0.7472	+1.1838	−1.0744	Oct.	1	+0.0113	−0.7359	+1.2674	+0.5174

ε = + σ′a.

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.	Solar Day. (Sid. Hour.)	Log *A*.	Log *B*.	Log *C*.	Log *D*.
Oct. 1	+0.0113	−0.7359	+1.2674	+0.5174	Nov. 16	+0.0600	−0.6553	+1.0300	+1.2247
2	0.0130	0.7347	1.2661	0.5608	17	0.0608	0.6558	1.0189	1.2299
3	0.0147	0.7349	1.2647	0.6003	h 18	0.0615	0.6550	1.0073	1.2349
h 4	0.0162	0.7362	1.2631	0.6363	(4.0) 19	0.0621	0.6525	0.9952	1.2398
(1.0) 5	0.0173	0.7381	1.2614	0.6695	20	0.0628	0.6482	0.9826	1.2445
6	+0.0181	−0.7399	+1.2596	+0.7002	21	+0.0637	−0.6426	+0.9694	+1.2490
7	0.0185	0.7411	1.2577	0.7288	22	0.0650	0.6363	0.9556	1.2533
8	0.0187	0.7411	1.2556	0.7555	23	0.0666	0.6300	0.9412	1.2574
9	0.0188	0.7396	1.2534	0.7805	24	0.0685	0.6246	0.9263	1.2614
10	0.0189	0.7367	1.2510	0.8041	25	0.0705	0.6209	0.9108	1.2652
11	+0.0193	−0.7325	+1.2484	+0.8264	26	+0.0726	−0.6191	+0.8947	+1.2688
12	0.0200	0.7277	1.2457	0.8474	27	0.0745	0.6191	0.8780	1.2723
13	0.0210	0.7230	1.2429	0.8674	28	0.0762	0.6205	0.8602	1.2756
14	0.0224	0.7189	1.2400	0.8864	29	0.0776	0.6225	0.8413	1.2787
15	0.0239	0.7160	1.2369	0.9044	30	0.0787	0.6242	0.8213	1.2817
16	+0.0255	−0.7146	+1.2336	+0.9216	Dec. 1	+0.0795	−0.6249	+0.8002	+1.2845
17	0.0270	0.7145	1.2301	0.9380	2	0.0802	0.6240	0.7780	1.2871
18	0.0283	0.7156	1.2264	0.9537	3	0.0808	0.6212	0.7545	1.2896
h 19	0.0293	0.7170	1.2226	0.9688	h 4	0.0815	0.6166	0.7295	1.2920
(2.0) 20	0.0300	0.7182	1.2187	0.9833	(5.0) 5	0.0825	0.6110	0.7029	1.2943
21	+0.0305	−0.7185	+1.2146	+0.9972	6	+0.0837	−0.6049	+0.6743	+1.2964
22	0.0308	0.7175	1.2104	1.0105	7	0.0852	0.5992	0.6436	1.2983
23	0.0311	0.7149	1.2060	1.0233	8	0.0870	0.5948	0.6103	1.3001
24	0.0316	0.7108	1.2014	1.0356	9	0.0889	0.5922	0.5742	1.3017
25	0.0324	0.7056	1.1966	1.0475	10	0.0908	0.5918	0.5346	1.3032
26	+0.0336	−0.7000	+1.1915	+1.0589	11	+0.0925	−0.5933	+0.4910	+1.3046
27	0.0351	0.6947	1.1862	1.0699	12	0.0940	0.5959	0.4422	1.3059
28	0.0368	0.6902	1.1807	1.0805	13	0.0952	0.5989	0.3872	1.3070
29	0.0387	0.6873	1.1750	1.0907	14	0.0962	0.6014	0.3239	1.3079
30	0.0406	0.6859	1.1691	1.1006	15	0.0970	0.6026	0.2495	1.3087
31	+0.0423	−0.6859	+1.1631	+1.1101	16	+0.0977	−0.6019	+0.1598	+1.3093
Nov. 1	0.0437	0.6869	1.1569	1.1193	17	0.0985	0.5993	0.0462	1.3098
2	0.0448	0.6882	1.1504	1.1281	18	0.0994	0.5950	9.8915	1.3102
h 3	0.0456	0.6889	1.1436	1.1366	h 19	0.1006	0.5898	9.6490	1.3105
(3.0) 4	0.0461	0.6885	1.1366	1.1449	(6.0) 20	0.1022	0.5844	+9.0806	1.3106
5	+0.0464	−0.6866	+1.1294	+1.1529	21	+0.1040	−0.5799	−9.3425	+1.3106
6	0.0468	0.6830	1.1219	1.1607	22	0.1059	0.5769	9.7435	1.3105
7	0.0474	0.6779	1.1141	1.1682	23	0.1079	0.5761	9.9483	1.3102
8	0.0482	0.6720	1.1060	1.1754	24	0.1099	0.5774	0.0865	1.3098
9	0.0494	0.6658	1.0976	1.1824	25	0.1117	0.5805	0.1913	1.3092
10	+0.0509	−0.6602	+1.0889	+1.1891	26	+0.1131	−0.5846	−0.2753	+1.3084
11	0.0526	0.6559	1.0800	1.1956	27	0.1143	0.5886	0.3457	1.3075
12	0.0544	0.6531	1.0708	1.2019	28	0.1152	0.5918	0.4062	1.3065
13	0.0561	0.6522	1.0612	1.2079	29	0.1159	0.5934	0.4591	1.3054
14	0.0577	0.6526	1.0512	1.2137	30	0.1165	0.5931	0.5061	1.3041
15	+0.0590	−0.6539	+1.0408	+1.2193	31	+0.1172	−0.5909	−0.5485	+1.3027
16	+0.0600	−0.6553	+1.0300	+1.2247	32	+0.1180	−0.5872	−0.5869	+1.3012

$E = +0^s.04$

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (and Hour)		τ	f In Arc	f In Time	G In Arc	G In Time	H In Arc	H In Time	Log g.	Log h.	i	Log i.
		y	″	s	° ′	h m	° ′	h m			°	
Jan.	0	0.0031	+11 10	+0.740	307 59	20 31.3	349 47	23 19.1	+0.8933	+1.9[illegible]	1 57	0.1996
	1	0.0058	11 [illegible]	0.757	308 43	20 34.9	348 51	23 15.4	0.8[illegible]	1.9[illegible]	1 71	0.2[illegible]
	2	0.0086	11 64	0.776	309 21	20 37.4	347 55	23 11.7	0.9109	1.9[illegible]	1 89	0.2[illegible]
	3	0.0113	11 [illegible]	0.79[illegible]	[illegible] 51	20 39.4	346 58	23 7.[illegible]	0.9[illegible]57	1.9[illegible]	1 [illegible]	0.2[illegible]
	4	0.0141	12.11	0.80[illegible]	310 12	20 40.8	346 1	23 4.1	0.9105	1.9[illegible]	2 11	0.3[illegible]
h (7.0)	5	0.0168	+12 29	+0.810	310 26	20 41.7	345 4	23 0.3	+0.9151	+1.9[illegible]	2 27	0.3[illegible]
	6	0.0195	12 44	0.8[illegible]	310 34	20 42.3	344 7	22 56.5	0.9190	1.9[illegible]	2 41	0.3[illegible]
	7	0.0223	12 54	0.83[illegible]	310 39	20 42.6	343 10	22 52.7	0.9219	1.9072	2 54	0.4[illegible]
	8	0.0250	12.[illegible]	0.841	310 45	20 43.0	342 13	22 48.9	0.9239	1.9[illegible]	2 68	0.4[illegible]
	9	0.0278	12.[illegible]	0.846	310 54	20 43.6	341 16	22 45.1	0.9249	1.9[illegible]	2 81	0.4505
	10	0.0305	+12.[illegible]	+0.852	311 9	20 44.6	340 19	22 41.3	+0.929[illegible]	+1.9[illegible]	2 95	0.4708
	11	0.0332	12 [illegible]	0.859	311 32	20 46.1	339 22	22 37.5	0.92[illegible]3	1.9[illegible]	3 08	0.4[illegible]
	12	0.0[illegible]90	13 04	0.8[illegible]	312 1	20 48.1	338 24	22 [illegible]	0.9273	1.9[illegible]	3 22	0.5[illegible]
	13	0.0[illegible]	13 2[illegible]	0.8[illegible]	312 33	20 50.2	337 27	22 29.8	0.92[illegible]	1.9047	3 35	0.5[illegible]
	14	0.0414	13 45	0.8[illegible]	313 6	20 52.4	336 29	22 25.9	0.9117	1.9042	3 49	0.5427
	15	0.0441	+13 [illegible]	+0.9[illegible]	313 36	20 54.4	335 31	22 22.1	+0.9[illegible]	+1.9037	3 62	0.5587
	16	0.0468	13 [illegible]	0.[illegible]	314 1	20 56.1	334 33	22 18.2	0.[illegible]	1.9012	3 75	0.5740
	17	0.0496	14 15	0.[illegible]	314 18	20 57.2	333 35	22 14.3	0.9442	1.902[illegible]	3 88	0.5[illegible]
	18	0.0523	14 35	0.[illegible]57	314 30	20 58.0	332 37	22 10.5	0.[illegible]	1.9022	4 01	0.6025
	19	0.0551	14 51	0.[illegible]	314 35	20 58.3	331 39	22 6.6	0.9511	1.901[illegible]	4 13	0.6158
h (8.0)	20	0.0[illegible]	+14 [illegible]	+0.[illegible]	314 37	20 58.5	330 40	22 2.7	+0.95[illegible]	+1.9010	4 25	−0.6286
	21	0.0[illegible]	14 [illegible]	0.[illegible]	314 39	20 58.6	329 42	21 58.8	0.95[illegible]	1.9[illegible]4	4 37	0.6[illegible]
	22	0.0[illegible]	14 51	0.[illegible]	314 41	20 58.7	328 43	21 54.9	0.9[illegible]	1.[illegible]	4 49	0.6527
	23	0.0[illegible]	14 [illegible]	0.[illegible]	314 52	20 59.5	[illegible] 44	21 51.0	0.[illegible]	1.[illegible]	4 61	0.6641
	24	0.0[illegible]	15 00	1.000	315 9	21 0.6	[illegible] 45	21 47.0	0.9[illegible]	1.[illegible]	4 73	0.6751
	25	0.0715	+15 15	+1.00[illegible]	315 30	21 2.0	[illegible] 46	21 43.1	+0.9644	+1.[illegible]	−4 85	0.6857
	26	0.0[illegible]42	15 31	1.021	315 57	21 3.8	[illegible] 46	21 39.1	0.9[illegible]	1.[illegible]	4 97	0.6[illegible]
	27	0.0[illegible]	15 51	1.034	316 25	21 5.[illegible]	[illegible] 47	21 35.1	0.9[illegible]	1.[illegible]	5 08	0.7059
	28	[illegible]	15 [illegible]	1.0[illegible]	316 54	21 7.[illegible]	[illegible] 47	21 31.1	0.9[illegible]15	1.[illegible]	5 19	0.7154
	29	0.0[illegible]	15 [illegible]	1.0[illegible]	317 16	21 9.1	[illegible] 47	21 27.1	0.9[illegible]54	1.[illegible]	5 30	0.7245
	30	0.0[illegible]	+1[illegible] 11	+1.0[illegible]	31[illegible] 11	21 10.2	[illegible] 47	21 23.1	+0.9[illegible]	+1.[illegible]	5 41	0.7333
	31	0.0[illegible]	16 42	1.0[illegible]	31[illegible] 44	21 10.[illegible]	[illegible] 47	21 19.1	0.98[illegible]	1.[illegible]41	5 52	0.7418
Feb.	1	0.0[illegible]	16.58	1.10[illegible]	317 4[illegible]	21 11.1	[illegible] 46	21 15.1	0.98[illegible]	1.[illegible]	5 [illegible]	0.7[illegible]
	2	0.0[illegible]14	16 [illegible]	1.11[illegible]	317 45	21 11.0	[illegible] 46	21 11.1	0.9918	1.[illegible]	5 [illegible]	0.7[illegible]
	3	0.0[illegible]	16 [illegible]	1.11[illegible]	317 42	21 10.8	316 46	21 7.1	0.9937	1.[illegible]	5 8[illegible]	0.7[illegible]
h (9.0)	4	[illegible]	+16 84	+1.12[illegible]	317 3[illegible]	21 10.[illegible]	315 45	21 3.0	+0.9954	+1.[illegible]	5 92	0.7[illegible]
	5	0.1[illegible]	16 [illegible]	1.12[illegible]	317 [illegible]	21 10.6	314 44	20 59.9	0.9[illegible]	1.[illegible]	6 02	0.7[illegible]
	6	0.1[illegible]44	16 [illegible]	1.1[illegible]	31[illegible] 44	21 10.[illegible]	313 43	20 54.9	0.99[illegible]0	1.[illegible]	6 12	0.7[illegible]
	7	0.1[illegible]	16 [illegible]	1.1[illegible]	317 [illegible]	21 11.7	312 42	20 5[illegible]	0.99[illegible]3	1.[illegible]	6 21	0.7[illegible]
	8	0.1[illegible]	1[illegible]	1.13[illegible]	318 11	21 12.[illegible]	311 41	20 46.7	0.99[illegible]	1.[illegible]	6 30	0.7[illegible]
	9	0.11[illegible]	+1[illegible] 22	+1.14[illegible]	31[illegible] 11	21 14.2	[illegible]	20 42.[illegible]	+0.99[illegible]	+1.[illegible]	6 39	0.[illegible]
	10	0.11[illegible]	1[illegible]	1.1[illegible]	31[illegible] 34	21 15.[illegible]	[illegible]	20 [illegible]5	1.0[illegible]11	1.[illegible]	6.48	0.8[illegible]
	11	0.1[illegible]	1[illegible]	1.1[illegible]	[illegible] 14	21 16.[illegible]	[illegible]	[illegible] 34.[illegible]	1.0[illegible]	1.[illegible]	6 57	0.8175
	12	0.1[illegible]	1[illegible]	1.[illegible]	[illegible]	21 1[illegible]	[illegible]	[illegible]	1.[illegible]	1.[illegible]	6 65	0.8[illegible]
	13	0.1[illegible]	17 [illegible]	1.1[illegible]	[illegible]	21 1[illegible]	30[illegible] 31	20 26.1	1.0[illegible]	1.[illegible]	6 73	0.82[illegible]
	14	[illegible]	+1[illegible]	+1.[illegible]	[illegible] 44	21 1[illegible]	[illegible]	[illegible]	+1.0142	+1.[illegible]	6 81	0.8[illegible]
	15	[illegible]	+1[illegible]	+1.[illegible]	[illegible]	21 1[illegible]	[illegible]	[illegible]	+1.0[illegible]	+1.[illegible]44	6 8[illegible]	0.8[illegible]

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	f In Arc.	f In Time.	G In Arc.	G In Time.	H In Arc.	H In Time.	Log g.	Log h.	i	Log i.
	y	"	s	° '	h m	° '	h m			"	
Feb. 15	0.1290	+18.28	+1.219	319 43	21 18.9	304 26	20 17.7	+1.0175	+1.2844	-6.89	-0.8382
16	0.1318	18.38	1.225	319 39	21 18.6	303 23	20 13.5	1.0201	1.2838	6.97	0.8429
17	0.1345	18.44	1.229	319 35	21 18.3	302 20	20 9.3	1.0221	1.2832	7.04	0.8474
h 18	0.1373	18.49	1.233	319 34	21 18.4	301 17	20 5.1	1.0233	1.2826	7.11	0.8517
(10.0) 19	0.1400	18.53	1.235	319 36	21 18.5	300 14	20 0.9	1.0241	1.2820	7.18	0.8559
20	0.1427	+18.59	+1.239	319 44	21 18.9	299 11	19 56.7	+1.0246	+1.2814	-7.25	-0.8599
21	0.1454	18.67	1.245	319 59	21 19.9	298 8	19 52.5	1.0250	1.2808	7.31	0.8637
22	0.1482	18.79	1.253	320 17	21 21.1	297 4	19 48.3	1.0259	1.2803	7.37	0.8674
23	0.1509	18.95	1.263	320 39	21 22.6	296 0	19 44.0	1.0273	1.2798	7.43	0.8709
24	0.1537	19.14	1.276	320 59	21 23.9	294 56	19 39.7	1.0294	1.2793	7.49	0.8743
25	0.1564	+19.34	+1.289	321 18	21 25.2	293 52	19 35.5	+1.0321	+1.2788	-7.54	-0.8775
26	0.1591	19.54	1.303	321 30	21 26.0	292 48	19 31.2	1.0353	1.2783	7.59	0.8805
27	0.1619	19.72	1.315	321 38	21 26.5	291 44	19 26.9	1.0385	1.2779	7.64	0.8834
28	0.1646	19.87	1.325	321 40	21 26.7	290 40	19 22.7	1.0415	1.2775	7.69	0.8861
Mar. 1	0.1673	19.97	1.331	321 37	21 26.5	289 36	19 18.4	1.0440	1.2771	7.73	0.8887
2	0.1700	+20.03	+1.335	321 32	21 26.1	288 32	19 14.1	+1.0458	+1.2767	-7.77	-0.8911
3	0.1728	20.05	1.337	321 27	21 25.8	287 28	19 9.8	1.0468	1.2763	7.81	0.8933
4	0.1755	20.06	1.337	321 25	21 25.7	286 23	19 5.5	1.0472	1.2759	7.85	0.8954
h 5	0.1783	20.07	1.338	321 28	21 25.9	285 18	19 1.2	1.0471	1.2755	7.89	0.8974
(11.0) 6	0.1810	20.08	1.339	321 36	21 26.4	284 13	18 56.9	1.0468	1.2752	7.93	0.8993
7	0.1837	+20.14	+1.343	321 49	21 27.3	283 9	18 52.6	+1.0467	+1.2749	-7.96	-0.9010
8	0.1865	20.24	1.349	322 7	21 28.5	282 4	18 48.3	1.0470	1.2746	7.99	0.9025
9	0.1892	20.37	1.358	322 25	21 29.7	280 59	18 43.9	1.0480	1.2743	8.02	0.9039
10	0.1920	20.53	1.369	322 43	21 30.9	279 54	18 39.6	1.0497	1.2741	8.04	0.9051
11	0.1947	20.70	1.380	322 58	21 31.9	278 49	18 35.3	1.0519	1.2739	8.06	0.9062
12	0.1974	+20.87	+1.391	323 9	21 32.6	277 44	18 30.9	+1.0545	+1.2737	-8.08	-0.9072
13	0.2002	21.03	1.402	323 13	21 32.9	276 39	18 26.6	1.0572	1.2736	8.10	0.9081
14	0.2029	21.15	1.410	323 14	21 32.9	275 34	18 22.3	1.0596	1.2735	8.11	0.9088
15	0.2057	21.23	1.415	323 12	21 32.8	274 29	18 17.9	1.0615	1.2734	8.12	0.9094
16	0.2084	21.28	1.419	323 9	21 32.6	273 24	18 13.6	1.0628	1.2733	8.13	0.9099
17	0.2111	+21.31	+1.421	323 8	21 32.5	272 19	18 9.3	+1.0635	+1.2732	-8.13	-0.9102
18	0.2139	21.33	1.422	323 10	21 32.7	271 14	18 4.9	1.0637	1.2731	8.13	0.9104
19	0.2166	21.36	1.424	323 18	21 33.2	270 9	18 0.6	1.0636	1.2731	8.13	0.9105
h 20	0.2194	21.43	1.429	323 32	21 34.1	269 4	17 56.3	1.0635	1.2732	8.13	0.9105
(12.0) 21	0.2221	21.52	1.435	323 50	21 35.3	267 59	17 51.9	1.0637	1.2732	8.13	0.9103
22	0.2248	+21.65	+1.443	324 11	21 36.7	266 54	17 47.6	+1.0644	+1.2733	-8.12	-0.9100
23	0.2276	21.81	1.454	324 33	21 38.2	265 49	17 43.3	1.0657	1.2734	8.11	0.9096
24	0.2303	22.00	1.467	324 52	21 39.5	264 44	17 38.9	1.0677	1.2735	8.10	0.9091
25	0.2331	22.19	1.479	325 8	21 40.5	263 39	17 34.6	1.0701	1.2736	8.09	0.9084
26	0.2358	22.37	1.491	325 18	21 41.2	262 35	17 30.3	1.0727	1.2737	8.08	0.9076
27	0.2385	+22.51	+1.501	325 23	21 41.5	261 31	17 26.1	+1.0751	+1.2739	-8.06	-0.9066
28	0.2413	22.62	1.508	325 25	21 41.7	260 27	17 21.8	1.0770	1.2741	8.04	0.9055
29	0.2440	22.70	1.513	325 23	21 41.5	259 23	17 17.5	1.0785	1.2743	8.02	0.9043
30	0.2468	22.72	1.515	325 22	21 41.4	258 19	17 13.3	1.0792	1.2745	8.00	0.9030
31	0.2495	22.74	1.516	325 23	21 41.5	257 15	17 9.0	1.0793	1.2748	7.97	0.9015
Apr. 1	0.2522	+22.74	+1.516	325 27	21 41.8	256 11	17 4.7	+1.0790	+1.2751	-7.94	-0.8999
2	0.2550	+22.76	+1.517	325 38	21 42.5	255 7	17 0.5	+1.0784	+1.2754	7.91	-0.8982

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day and Hour		τ	f In Arc	f In Time	G In Arc	G In Time	H In Arc	H In Time	Log g.	Log h.	i	Log i.
		y	°	°	° ′	h m	° ′	h m			°	
Apr	1	0.2522	+22.74	+1.516	325 27	21 41.8	256 11	17 4.7	+1.0790	+1.2751	-7.94	0.8909
	2	0.2550	22.76	1.517	325 38	21 42.5	255 7	17 0.5	1.0784	1.2754	7.91	0.8[illegible]
	3	0.2577	22.81	1.521	325 53	21 43.5	254 3	16 56.2	1.0780	1.2757	7.88	0.8963
h	4	0.2605	22.88	1.525	326 12	21 44.8	252 5[illegible]	16 51.9	1.0779	1.2760	7.84	0.8943
(12.0)	5	0.2632	23.00	1.533	326 33	21 4[illegible]	251 [illegible]	16 47.7	1.0784	1.2764	7.8[illegible]	0.8921
	6	0.2659	+23.17	+1.545	326 54	21 47.[illegible]	[illegible] 51	16 43.5	+1.0796	+1.2768	-7.7[illegible]	0.88[illegible]
	7	0.2687	23.34	1.556	327 12	21 48.8	249 5[illegible]	16 39.3	1.0814	1.2772	7.72	0.8874
	8	0.2714	23.52	1.568	327 26	21 49.7	248 47	16 35.1	1.0837	1.2776	7.67	0.8848
	9	0.2742	23.68	1.57[illegible]	327 35	21 50.3	247 44	16 30.9	1.0860	1.2781	7.62	0.8820
	10	0.2769	23.82	1.588	327 40	21 50.7	246 42	16 26.8	1.0881	1.2786	7.57	0.8790
	11	0.2796	+23.93	+1.595	327 42	21 50.8	245 40	16 22.7	+1.0899	+1.2791	7.52	0.8760
	12	0.2824	23.99	1.599	327 43	21 50.9	244 38	16 18.5	1.0911	1.27[illegible]	7.46	0.87[illegible]
	13	0.2851	24.04	1.603	327 45	21 51.0	243 36	16 14.4	1.0918	1.2801	7.40	0.8[illegible]
	14	0.2879	24.07	1.605	327 50	21 51.3	242 34	16 10.3	1.0920	1.2806	7.34	0.8[illegible]
	15	0.2906	24.12	1.608	328 1	21 52.1	241 32	16 6.1	1.0919	1.2811	7.[illegible]	0.8626
	16	0.2933	+24.17	+1.611	328 16	21 53.1	240 30	16 2.0	+1.09[illegible]	+1.2816	-7.22	0.8589
	17	0.29[illegible]	24.28	1.61[illegible]	328 37	21 54.5	23[illegible] 29	15 57.9	1.0[illegible]	1.2822	7.16	0.8550
	18	0.29[illegible]	24.42	1.628	329 0	21 56.0	2[illegible] 28	15 53.9	1.09[illegible]	1.2827	7.09	0.8509
h	19	0.30[illegible]	24.5[illegible]	1.63[illegible]	329 24	21 57.6	23[illegible] 2[illegible]	15 49.8	1.09[illegible]	1.2833	7.02	0.8466
(12.0)	20	0.3042	24.7[illegible]	1.6[illegible]	329 47	21 59.1	23[illegible] 2[illegible]	15 45.8	1.09[illegible]	1.2839	6.95	0.8422
	21	[illegible]	+25.01	+1.66[illegible]	330 6	22 0.4	23[illegible] 26	15 41.7	+1.09[illegible]	+1.2845	6.8[illegible]	0.8376
	22	0.30[illegible]	25.22	1.6[illegible]	330 20	22 1.3	234 26	15 37.7	1.10[illegible]	1.2851	6.81	0.83[illegible]
	23	0.3124	25.[illegible]	1.6[illegible]	330 2[illegible]	22 1.[illegible]	23[illegible] 2[illegible]	15 33.7	1.1031	1.2857	6.73	0.82[illegible]
	24	0.3152	25.54	1.703	330 34	22 2.3	[illegible]	15 29.7	1.1052	1.28[illegible]	6.65	0.82[illegible]
	25	0.31[illegible]	25.[illegible]	1.7[illegible]	330 3[illegible]	22 2.4	231 2[illegible]	15 25.7	1.10[illegible]	1.28[illegible]	6.57	0.8175
	26	0.32[illegible]	+25.71	+1.714	[illegible]	22 2.[illegible]	[illegible]	15 21.[illegible]	+1.10[illegible]	+1.28[illegible]	-6.49	0.8120
	27	0.3234	25.75	1.717	331 42	22 2.[illegible]	22[illegible]	15 17.[illegible]	1.1084	1.28[illegible]	6.40	0.8063
	28	0.32[illegible]	25.78	1.7[illegible]	331 5[illegible]	22 3.[illegible]	228 27	15 13.[illegible]	1.10[illegible]	1.2[illegible]	6.31	0.80[illegible]
	29	0.32[illegible]	25.81	1.721	332 2	22 4.[illegible]	22[illegible]	15 9.[illegible]	1.1[illegible]	1.28[illegible]	6.22	0.79[illegible]
	30	0.33[illegible]	25.8[illegible]	1.72[illegible]	332 1[illegible]	22 [illegible]	22[illegible] 2[illegible]	15 5.[illegible]	1.1[illegible]	1.2[illegible]	6.1[illegible]	0.79[illegible]
May	1	0.33[illegible]	+2[illegible]	+1.7[illegible]	332 3[illegible]	22 6.[illegible]	225 [illegible]	15 [illegible]	+1.108[illegible]	+1.2[illegible]	6.0[illegible]	0.78[illegible]
	2	0.33[illegible]	2[illegible]	1.741	332 2	22 8.1	224 3[illegible]	14 58.1	1.1090	1.2[illegible]	5.95	0.7747
	3	0.34[illegible]	26.29	1.75[illegible]	332 24	22 9.[illegible]	223 34	14 54.3	1.1105	1.2[illegible]	5.8[illegible]	0.7[illegible]
	4	0.34[illegible]	26.51	1.7[illegible]	332 44	22 1[illegible]	222 3[illegible]	14 50.4	1.1124	1.2[illegible]	5.7[illegible]	0.7[illegible]
h	5	0.3453	26.71	1.7[illegible]	333 1	22 11.1	221 38	14 46.5	1.1147	1.2932	5.66	0.7[illegible]
(12.0)	6	0.34[illegible]	+26.9[illegible]	+1.7[illegible]	333 12	22 12.8	220 40	14 42.7	+1.1174	+1.2[illegible]	-5.5[illegible]	0.7455
	7	0.35[illegible]	2[illegible]	1.[illegible]	333 1[illegible]	22 13.[illegible]	219 43	14 38.[illegible]	1.1198	1.2[illegible]	5.46	0.7[illegible]
	8	0.35[illegible]	27.23	1.8[illegible]	333 23	22 13.[illegible]	218 46	14 35.[illegible]	1.1220	1.2[illegible]	5.3[illegible]	0.7231
	9	0.35[illegible]	27.[illegible]	1.8[illegible]	333 2[illegible]	22 1[illegible]	217 4[illegible]	14 31.3	1.1238	1.[illegible]	5.26	0.72[illegible]
	10	0.35[illegible]	27.44	1.8[illegible]	333 2[illegible]	22 1[illegible]	216 [illegible]	14 27.[illegible]	1.1247	1.2[illegible]	5.15	0.71[illegible]
	11	0.3[illegible]	+27.[illegible]	+1.8[illegible]	333 3[illegible]	22 14.4	215 [illegible]	14 23.7	+1.1255	+1.[illegible]	5.04	0.7[illegible]
	12	0.36[illegible]	27.[illegible]	1.[illegible]	333 4[illegible]	22 15.1	214 [illegible]	14 [illegible]	1.125[illegible]	1.[illegible]	4.[illegible]	0.70[illegible]
	13	0.36[illegible]	2[illegible]	1.84[illegible]	334 [illegible]	22 16	2[illegible]	14 1[illegible]	1.12[illegible]	1.[illegible]	4.8[illegible]	0.6[illegible]
	14	0.3[illegible]	2[illegible]	1.[illegible]	334 2	22 1[illegible]	213 [illegible]	14 12.4	1.12[illegible]	1.2[illegible]	4.71	0.67[illegible]
	15	0.3727	2[illegible]	1.8[illegible]	334 43	22 18.[illegible]	212 1[illegible]	14 8.7	1.1280	1.2[illegible]	4.6[illegible]	0.6690
	16	0.3754	+28.14	+1.8[illegible]	33[illegible]	22 2[illegible]	211 14	14 4.[illegible]	+1.12[illegible]	+1.2[illegible]	4.49	0.6524
	17	0.3782	+2[illegible]	+1.[illegible]	[illegible]	22 2[illegible]	2[illegible]	14 1.[illegible]	+1.1[illegible]	+1.2[illegible]	4.38	0.6412

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)	τ	*f* In Arc.	*f* In Time.	*G* In Arc.	*G* In Time.	*H* In Arc.	*H* In Time.	Log *g*.	Log *h*.	*i*	Log *i*.
	y	"	s	° ′	h m	° ′	h m			°	
May 17	0.3782	+28.36	+1.891	335 28	22 21.9	210 18	14 1.2	+1.1320	+1.3005	−4.38	−0.6412
18	0.3809	28.62	1.908	335 47	22 23.1	209 23	13 57.5	1.1347	1.3010	4.26	0.6295
19	0.3837	28.86	1.924	336 1	22 24.1	208 28	13 53.9	1.1376	1.3015	4.14	0.6173
h 20	0.3864	29.08	1.939	336 10	22 24.7	207 33	13 50.2	1.1404	1.3020	4.02	0.6046
(16.0) 21	0.3891	29.27	1.951	336 15	22 25.0	206 38	13 46.5	1.1430	1.3025	3.90	0.5914
22	0.3919	+29.43	+1.962	336 17	22 25.1	205 43	13 42.9	+1.1452	+1.3030	−3.78	−0.5777
23	0.3946	29.53	1.969	336 19	22 25.3	204 48	13 39.2	1.1467	1.3035	3.66	0.5635
24	0.3974	29.62	1.975	336 22	22 25.5	203 54	13 35.6	1.1478	1.3040	3.54	0.5489
25	0.4001	29.69	1.979	336 28	22 25.9	203 0	13 32.0	1.1484	1.3044	3.42	0.5337
26	0.4028	29.76	1.984	336 38	22 26.5	202 6	13 28.4	1.1489	1.3049	3.30	0.5181
27	0.4056	+29.85	+1.990	336 53	22 27.5	201 12	13 24.8	+1.1494	+1.3053	−3.18	−0.5014
28	0.4083	29.96	1.997	337 10	22 28.7	200 18	13 21.2	1.1501	1.3057	3.05	0.4837
29	0.4111	30.12	2.007	337 30	22 30.0	199 24	13 17.6	1.1514	1.3061	2.92	0.4650
30	0.4138	30.31	2.021	337 50	22 31.3	198 30	13 14.0	1.1532	1.3065	2.79	0.4453
31	0.4165	30.54	2.036	338 7	22 32.5	197 36	13 10.4	1.1555	1.3069	2.66	0.4246
June 1	0.4192	+30.78	+2.052	338 21	22 33.4	196 43	13 6.9	+1.1582	+1.3073	−2.53	−0.4032
2	0.4220	31.01	2.067	338 30	22 34.0	195 49	13 3.3	1.1610	1.3076	2.40	0.3804
3	0.4247	31.23	2.082	338 36	22 34.4	194 56	12 59.7	1.1637	1.3079	2.27	0.3562
h 4	0.4274	31.40	2.093	338 37	22 34.5	194 3	12 56.2	1.1662	1.3082	2.14	0.3304
(17.0) 5	0.4301	31.56	2.104	338 38	22 34.5	193 9	12 52.6	1.1682	1.3085	2.01	0.3027
6	0.4329	+31.67	+2.111	338 38	22 34.5	192 16	12 49.1	+1.1698	+1.3088	−1.88	−0.2732
7	0.4356	31.78	2.119	338 41	22 34.7	191 23	12 45.5	1.1711	1.3090	1.75	0.2416
8	0.4384	31.87	2.125	338 48	22 35.2	190 30	12 42.0	1.1720	1.3092	1.62	0.2371
9	0.4411	31.98	2.132	338 58	22 35.9	189 37	12 38.5	1.1729	1.3094	1.48	0.1696
10	0.4438	32.10	2.140	339 13	22 36.9	188 44	12 34.9	1.1740	1.3096	1.35	0.1283
11	0.4466	+32.27	+2.151	339 29	22 37.9	187 51	12 31.4	+1.1755	+1.3098	−1.21	−0.0826
12	0.4493	32.47	2.165	339 47	22 39.1	186 58	12 27.8	1.1774	1.3100	1.08	0.0315
13	0.4521	32.72	2.181	340 5	22 40.3	186 5	12 24.3	1.1799	1.3102	0.94	9.9740
14	0.4548	32.98	2.199	340 19	22 41.3	185 13	12 20.8	1.1827	1.3103	0.81	9.9066
15	0.4575	33.25	2.217	340 29	22 41.9	184 20	12 17.3	1.1857	1.3104	0.68	9.8272
16	0.4603	+33.50	+2.233	340 35	22 42.3	183 28	12 13.8	+1.1887	+1.3104	−0.54	−9.7294
17	0.4630	33.73	2.249	340 37	22 42.5	182 35	12 10.3	1.1915	1.3105	0.40	9.6030
18	0.4658	33.90	2.260	340 36	22 42.4	181 43	12 6.8	1.1939	1.3105	0.26	9.4247
h 19	0.4685	34.05	2.270	340 34	22 42.3	180 50	12 3.3	1.1958	1.3106	−0.12	−9.0802
(18.0) 20	0.4712	34.16	2.277	340 33	22 42.2	179 57	11 59.8	1.1972	1.3106	+0.01	+7.7160
21	0.4740	+34.25	+2.283	340 34	22 42.3	179 5	11 56.3	+1.1983	+1.3106	+0.15	+9.1482
22	0.4767	34.32	2.288	340 39	22 42.6	178 12	11 52.8	1.1990	1.3105	0.28	9.4412
23	0.4795	34.41	2.294	340 48	22 43.2	177 20	11 49.3	1.1998	1.3105	0.42	9.6142
24	0.4822	34.52	2.301	341 0	22 44.0	176 27	11 45.8	1.2007	1.3104	0.55	9.7377
25	0.4849	34.68	2.312	341 13	22 44.9	175 35	11 42.3	1.2021	1.3103	0.69	9.8335
26	0.4877	+34.87	+2.325	341 27	22 45.8	174 42	11 38.8	+1.2039	+1.3102	+0.82	+9.9118
27	0.4904	35.10	2.340	341 40	22 46.7	173 50	11 35.3	1.2061	1.3101	0.96	9.9784
28	0.4932	35.34	2.356	341 49	22 47.3	172 57	11 31.8	1.2087	1.3100	1.09	0.0353
29	0.4959	35.58	2.372	341 54	22 47.6	172 5	11 28.3	1.2115	1.3098	1.22	0.0859
30	0.4986	35.82	2.387	341 56	22 47.7	171 12	11 24.8	1.2143	1.3096	1.36	0.1312
July 1	0.5014	+36.02	+2.401	341 54	22 47.6	170 20	11 21.3	+1.2168	+1.3094	+1.49	+0.1720
2	0.5041	+36.18	+2.412	341 51	22 47.4	169 27	11 17.8	+1.2188	+1.3092	+1.62	+0.2093

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day and Hour	τ	f In Arc	f In Time	G In Arc	G In Time	H In Arc	H In Time	Log g	Log h	i	Log i
	y	°	s	° '	h m	° '	h m			°	
July 1	0.5014	+36.02	+2.401	341 54	22 47.6	170 30	11 21.3	+1.2168	+1.3094	+1.40	+0.1720
2	0.5041	36.18	2.412	341 51	22 47.4	169 27	11 17.8	1.2185	1.3092	1.62	0.2093
3	0.5069	36.30	2.420	341 47	22 47.1	168 34	11 14.3	1.2204	1.3090	1.75	0.2435
h 4	0.5096	36.41	2.427	341 45	22 47.0	167 41	11 10.7	1.2217	1.3087	1.88	0.2750
(19.0) 5	0.5123	36.50	2.433	341 46	22 47.1	166 48	11 7.2	1.2228	1.3084	2.02	0.3044
6	0.5151	+36.60	+2.440	341 51	22 47.4	165 55	11 3.7	+1.2238	+1.3081	+2.15	+0.3317
7	0.5178	36.71	2.447	341 59	22 47.9	165 2	11 0.1	1.2248	1.3078	2.28	0.3573
8	0.5206	36.87	2.458	342 10	22 48.7	164 9	10 56.6	1.2262	1.3075	2.41	0.3814
9	0.5233	37.05	2.470	342 22	22 49.5	163 16	10 53.1	1.2279	1.3072	2.54	0.4041
10	0.5260	37.28	2.485	342 34	22 50.3	162 23	10 49.5	1.2300	1.3069	2.67	0.4255
11	0.5288	+37.53	+2.502	342 43	22 50.9	161 29	10 45.9	+1.2326	+1.3065	+2.79	+0.4459
12	0.5315	37.79	2.519	342 50	22 51.3	160 36	10 42.4	1.2353	1.3061	2.92	0.4652
13	0.5343	38.03	2.535	342 52	22 51.5	159 42	10 38.8	1.2380	1.3057	3.04	0.4835
14	0.5370	38.26	2.551	342 51	22 51.4	158 48	10 35.2	1.2406	1.3053	3.17	0.5011
15	0.5397	38.45	2.563	342 47	22 51.1	157 54	10 31.6	1.2429	1.3049	3.29	0.5180
16	0.5425	+38.57	+2.571	342 42	22 50.8	157 0	10 28.0	+1.2447	+1.3045	+3.42	+0.5341
17	0.5452	38.63	2.575	342 37	22 50.5	156 6	10 24.4	1.2460	1.3040	3.54	0.5494
18	0.5480	38.77	2.585	342 34	22 50.3	155 12	10 20.8	1.2470	1.3035	3.66	0.5640
19	0.5507	38.93	2.595	342 34	22 50.3	154 17	10 17.1	1.2477	1.3030	3.78	0.5777
h 20	0.5534	[illegible]	[illegible]	342 38	22 50.5	153 23	10 13.5	1.2483	1.3025	3.90	0.5910
(20.0) 21	0.5561	[illegible]	[illegible]	342 44	22 50.9	152 28	10 9.9	+1.24[illegible]	+1.3020	+4.02	+0.60[illegible]
22	0.5589	39.10	[illegible]	342 53	22 51.5	151 34	10 6.2	1.2501	1.3015	4.14	0.6164
23	0.5616	39.26	2.617	343 3	22 52.2	150 39	10 2.5	1.2515	[illegible]	4.26	[illegible]
24	0.5643	39.46	[illegible]	343 12	22 52.8	149 41	9 58.[illegible]	1.2532	[illegible]	4.37	[illegible]
25	0.5670	[illegible]	[illegible]	343 17	22 53.1	148 48	9 55.2	1.2554	[illegible]	4.49	0.6517
26	0.5698	+39.90	[illegible]	[illegible]	[illegible]	147 52	9 51.5	+1.257[illegible]	[illegible]	[illegible]	[illegible]
27	0.5725	40.11	[illegible]	343 19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	0.5753	40.29	[illegible]	343 15	[illegible]	[illegible]	9 44.1	[illegible]	[illegible]	[illegible]	[illegible]
29	0.5780	40.44	[illegible]	343 10	[illegible]	145 6	9 40.4	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	343 3	[illegible]	144 10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	342 58	[illegible]	143 14	[illegible]	[illegible]	[illegible]	+5.14	[illegible]
Aug. 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	142 17	[illegible]	[illegible]	[illegible]	5.24	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	141 21	9 25.4	[illegible]	[illegible]	5.35	[illegible]
3	[illegible]	[illegible]	[illegible]	343 1	[illegible]	140 24	[illegible]	[illegible]	[illegible]	5.45	[illegible]
h 4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.55	0.7444
(21.0) 5	[illegible]	[illegible]	+2.741	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	*f* In Arc.	*f* In Time.	*G* In Arc.	*G* In Time.	*H* In Arc.	*H* In Time.	Log *g*.	Log *h*.	*i*	Log *i*.
		y	"	s	° ′	h m	° ′	h m			"	
Aug.	16	0.6273	+42.63	+2.842	343 13	22 52.9	127 51	8 31.4	+1.2868	+1.2865	+6.62	+0.8214
	17	0.6301	42.68	2.845	343 17	22 53.1	126 51	8 27.4	1.2872	1.2859	6.70	0.8265
	18	0.6328	42.76	2.851	343 24	22 53.6	125 52	8 23.5	1.2877	1.2853	6.78	0.8314
h	19	0.6355	42.87	2.858	343 32	22 54.1	124 52	8 19.5	1.2886	1.2847	6.86	0.8361
(22.0)	20	0.6383	43.02	2.868	343 39	22 54.6	123 52	8 15.4	1.2898	1.2841	6.93	0.8406
	21	0.6410	+43.20	+2.880	343 44	22 54.9	122 52	8 11.4	+1.2914	+1.2835	+7.00	+0.8450
	22	0.6438	43.38	2.892	343 47	22 55.1	121 52	8 7.4	1.2931	1.2829	7.07	0.8493
	23	0.6465	43.57	2.905	343 47	22 55.1	120 52	8 3.4	1.2950	1.2824	7.14	0.8535
	24	0.6492	43.73	2.915	343 44	22 54.9	119 51	7 59.4	1.2968	1.2818	7.20	0.8575
	25	0.6520	43.85	2.923	343 39	22 54.6	118 50	7 55.3	1.2981	1.2813	7.26	0.8613
	26	0.6547	+43.94	+2.929	343 33	22 54.2	117 49	7 51.3	+1.2992	+1.2807	+7.32	+0.8649
	27	0.6575	44.00	2.933	343 28	22 53.9	116 48	7 47.2	1.3000	1.2802	7.38	0.8683
	28	0.6602	44.03	2.935	343 24	22 53.6	115 47	7 43.1	1.3005	1.2797	7.44	0.8716
	29	0.6629	44.07	2.938	343 24	22 53.6	114 46	7 39.1	1.3008	1.2792	7.49	0.8748
	30	0.6657	44.11	2.941	343 27	22 53.8	113 45	7 35.0	1.3011	1.2787	7.54	0.8778
	31	0.6684	+44.17	+2.945	343 33	22 54.2	112 43	7 30.9	+1.3015	+1.2782	+7.59	+0.8807
Sept.	1	0.6712	44.27	2.951	343 41	22 54.7	111 41	7 26.7	1.3022	1.2778	7.64	0.8835
	2	0.6739	44.41	2.961	343 49	22 55.3	110 39	7 22.6	1.3033	1.2774	7.69	0.8862
h	3	0.6766	44.59	2.973	343 56	22 55.8	109 37	7 18.5	1.3047	1.2770	7.73	0.8887
(23.0)	4	0.6794	44.78	2.985	344 3	22 56.2	108 35	7 14.3	1.3064	1.2766	7.77	0.8910
	5	0.6821	+44.97	+2.998	344 5	22 56.3	107 32	7 10.1	+1.3082	+1.2762	+7.81	+0.8932
	6	0.6849	45.16	3.011	344 5	22 56.3	106 29	7 5.9	1.3100	1.2759	7.85	0.8953
	7	0.6876	45.32	3.021	344 2	22 56.2	105 26	7 1.7	1.3116	1.2756	7.89	0.8972
	8	0.6903	45.42	3.028	343 58	22 55.9	104 23	6 57.5	1.3127	1.2753	7.92	0.8990
	9	0.6930	45.50	3.033	343 53	22 55.5	103 20	6 53.3	1.3136	1.2750	7.95	0.9006
	10	0.6958	+45.53	+3.035	343 49	22 55.3	102 17	6 49.1	+1.3141	+1.2747	+7.98	+0.9021
	11	0.6985	45.54	3.036	343 48	22 55.2	101 14	6 44.9	1.3142	1.2744	8.01	0.9035
	12	0.7012	45.54	3.036	343 49	22 55.3	100 10	6 40.7	1.3142	1.2742	8.03	0.9048
	13	0.7039	45.56	3.037	343 53	22 55.5	99 7	6 36.5	1.3142	1.2740	8.05	0.9060
	14	0.7067	45.60	3.040	344 0	22 56.0	98 4	6 32.3	1.3144	1.2738	8.07	0.9070
	15	0.7094	+45.68	+3.045	344 9	22 56.6	97 0	6 28.0	+1.3148	+1.2736	+8.09	+0.9079
	16	0.7122	45.80	3.053	344 17	22 57.1	95 56	6 23.7	1.3156	1.2735	8.10	0.9087
	17	0.7149	45.95	3.063	344 25	22 57.7	94 52	6 19.5	1.3168	1.2734	8.11	0.9093
	18	0.7176	46.12	3.075	344 30	22 58.0	93 48	6 15.2	1.3182	1.2733	8.12	0.9098
h	19	0.7204	46.28	3.085	344 33	22 58.2	92 44	6 10.9	1.3196	1.2732	8.12	0.9102
(0.0)	20	0.7231	+46.42	+3.095	344 32	22 58.1	91 40	6 6.7	+1.3210	+1.2732	+8.13	+0.9104
	21	0.7259	46.54	3.103	344 30	22 58.0	90 36	6 2.4	1.3222	1.2731	8.13	0.9105
	22	0.7286	46.63	3.109	344 26	22 57.7	89 32	5 58.1	1.3231	1.2731	8.13	0.9105
	23	0.7313	46.69	3.113	344 23	22 57.5	88 28	5 53.9	1.3237	1.2732	8.13	0.9104
	24	0.7341	46.71	3.114	344 21	22 57.4	87 24	5 49.6	1.3240	1.2732	8.13	0.9102
	25	0.7368	+46.73	+3.115	344 22	22 57.5	86 20	5 45.3	+1.3242	+1.2733	+8.12	+0.9099
	26	0.7396	46.75	3.117	344 26	22 57.7	85 16	5 41.1	1.3242	1.2734	8.12	0.9094
	27	0.7423	46.79	3.119	344 32	22 58.1	84 12	5 36.8	1.3244	1.2735	8.11	0.9087
	28	0.7450	46.88	3.125	344 43	22 58.9	83 8	5 32.5	1.3248	1.2736	8.09	0.9079
	29	0.7478	47.01	3.134	344 53	22 59.5	82 4	5 28.3	1.3256	1.2738	8.07	0.9070
	30	0.7505	+47.16	+3.144	345 3	23 0.2	81 0	5 24.0	+1.3268	+1.2740	+8.05	+0.9060
Oct.	1	0.7533	+47.35	+3.157	345 11	23 0.7	79 56	5 19.7	+1.3282	+1.2742	+8.03	+0.9049

FOR WASHINGTON MEAN MIDNIGHT.

(Solar Day and Hour)		τ	f In Arc.	f In Time.	G In Arc.	G In Time.	H In Arc.	H In Time.	Log g.	Log h.	i	Log i.
		y	″	s	° ′	h m	° ′	h m			″	
Oct	1	0.7[illegible]	+47.35	+3.157	345 11	23 0.7	79 56	5 19.7	+1.3282	+1.2742	+8.01	+0.90[illegible]
	2	0.7560	47.53	3.169	345 17	23 1.1	78 52	5 15.5	1.3297	1.2744	8.01	0.9037
	3	0.7587	47.71	3.181	345 20	23 1.3	77 48	5 11.2	1.3313	1.2747	7.98	0.9021
h	4	0.7615	47.89	3.192	345 20	23 1.3	76 44	5 6.9	1.3328	1.2750	7.95	0.[illegible]
(12.0)	5	0.7642	48.10	3.200	345 19	23 1.3	75 40	5 2.7	1.3339	1.2753	7.92	0.[illegible]
	6	0.7670	+48.09	+3.206	345 17	23 1.1	74 36	4 58.4	+1.3348	+1.2756	+7.89	+0.8972
	7	0.7697	48.13	3.209	345 15	23 1.0	73 32	4 54.1	1.3353	1.2759	7.85	0.8951
	8	0.7724	48.15	3.210	345 15	23 1.0	72 28	4 49.9	1.3355	1.2763	7.81	0.8929
	9	0.7752	48.16	3.211	345 19	23 1.3	71 24	4 45.6	1.3354	1.2767	7.77	0.8906
	10	0.7779	48.18	3.212	345 24	23 1.6	70 20	4 41.3	1.3354	1.2771	7.73	0.8882
	11	0.7807	+48.22	+3.215	345 33	23 2.2	69 16	4 37.1	+1.3355	+1.2775	+7.69	+0.8857
	12	0.7834	48.30	3.220	345 44	23 2.9	68 13	4 32.9	1.3358	1.2779	7.64	0.8832
	13	0.78[illegible]	48.42	3.228	345 54	23 3.6	67 10	4 28.7	1.3365	1.2784	7.59	0.8805
	14	0.78[illegible]	48.57	3.238	346 5	23 4.3	66 7	4 24.5	1.3375	1.2789	7.54	0.8776
	15	0.7916	48.74	3.249	346 13	23 4.9	65 4	4 20.3	1.3388	1.2794	7.49	0.8745
	16	0.7944	+48.92	+3.261	346 18	23 5.2	64 1	4 16.1	+1.3402	+1.2799	+7.43	+0.8712
	17	0.7971	49.09	3.272	346 21	23 5.4	62 58	4 11.9	1.3416	1.2804	7.37	0.8676
	18	0.7998	49.23	3.282	346 22	23 5.5	61 55	4 7.7	1.3429	1.2809	7.31	0.8639
h	19	0.8026	49.35	3.290	346 21	23 5.4	60 53	4 3.5	1.3439	1.2814	7.25	0.8601
(12.0)	20	0.8053	49.43	3.295	346 20	23 5.3	59 51	3 59.4	1.3447	1.2820	7.19	0.8562
	21	0.8081	+49.48	+3.299	346 20	23 5.3	58 49	3 55.3	+1.3452	+1.2825	+7.12	+0.8521
	22	0.8108	49.52	3.301	346 23	23 5.5	57 47	3 51.1	1.3454	1.2831	7.05	0.8479
	23	0.8135	49.57	3.30[illegible]	346 29	23 5.9	56 44	3 46.9	1.3455	1.2837	6.98	0.8435
	24	0.8162	49.61	3.307	346 39	23 6.4	55 42	3 42.8	1.3459	1.2843	6.90	0.83[illegible]
	25	0.8190	49.70	3.313	346 47	23 7.1	54 40	3 38.6	1.3463	1.2849	6.82	0.8340
	26	0.8217	+49.83	+3.322	346 59	23 7.9	53 37	3 34.5	+1.3471	+1.2855	+6.74	+0.82[illegible]
	27	0.8244	50.01	3.334	347 10	23 8.7	52 35	3 30.3	1.3483	1.2862	6.66	0.82[illegible]
	28	0.8271	50.20	3.347	347 22	23 9.4	51 33	3 26.2	1.3497	1.2868	6.58	0.81[illegible]
	29	0.8299	50.42	3.36[illegible]	347 29	23 [illegible]	50 32	3 22.2	1.3514	1.2875	6.50	0.81[illegible]
	30	0.8[illegible]	50.64	3.376	347 34	23 10.3	49 31	3 18.1	1.3531	1.2881	6.41	0.80[illegible]
	31	0.8354	+50.85	+3.390	347 37	23 10.5	48 30	3 14.0	+1.3547	+1.28[illegible]	+6.32	+0.80[illegible]
Nov	1	0.8[illegible]	51.01	3.401	347 38	23 10.5	47 29	3 9.9	1.3561	1.2894	6.23	0.7[illegible]
	2	0.84[illegible]	51.14	3.40[illegible]	347 39	23 10.5	46 28	3 5.9	1.357[illegible]	1.2901	6.14	0.7[illegible]
h	3	0.84[illegible]	51.23	3.415	347 38	23 10.5	45 28	3 1.9	1.3580	1.2907	6.05	0.78[illegible]
(12.0)	4	0.84[illegible]	51.29	3.419	347 33	23 10.[illegible]	44 27	2 57.8	1.35[illegible]	1.2914	5.95	0.77[illegible]
	5	0.8491	+51.33	+3.422	347 41	23 10.9	43 27	2 53.8	+1.35[illegible]	+1.2921	+5.8[illegible]	+0.7[illegible]
	6	0.8518	51.35	3.425	347 43	23 11.3	42 2[illegible]	2 49.8	1.35[illegible]	[illegible]	5.[illegible]	0.7[illegible]
	7	0.8545	51.44	3.42[illegible]	347 5[illegible]	23 [illegible]	41 2[illegible]	2 45.8	[illegible]	[illegible]	[illegible]	[illegible]
	8	0.85[illegible]	51.54	3.43[illegible]	348 9	23 12.6	[illegible]	2 41.[illegible]	1.[illegible]	[illegible]	5.5[illegible]	[illegible]
	9	[illegible]	51.[illegible]	3.44[illegible]	348 21	23 13.4	[illegible]	2 37.[illegible]	[illegible]	1.2[illegible]	5.44	[illegible]
	10	0.86[illegible]	+51.[illegible]	+3.45[illegible]	348 32	23 14.1	[illegible]	2 33.9	+1.[illegible]	+1.2[illegible]	+5.[illegible]	+0.[illegible]
	11	0.86[illegible]	52.[illegible]	3.4[illegible]	348 41	23 14.[illegible]	37 [illegible]	2 [illegible]	1.[illegible]	1.[illegible]	5.22	[illegible]
	12	0.86[illegible]	[illegible]	3.4[illegible]	348 48	23 15.2	[illegible]	2 [illegible]	[illegible]	[illegible]	5.11	[illegible]
	13	0.8710	[illegible]	3.4[illegible]	348 51	23 15.4	35 [illegible]	2 22.1	[illegible]	[illegible]	5.[illegible]	0.[illegible]
	14	0.8[illegible]	[illegible]	[illegible]	348 54	23 15.[illegible]	34 [illegible]	2 18.1	1.3[illegible]	1.2[illegible]	4.[illegible]	[illegible]
	15	0.8[illegible]	+52.83	+3.522	348 54	23 15.[illegible]	33 31	2 14.2	+1.[illegible]	+1.[illegible]	+4.[illegible]	+0.[illegible]
	16	0.8[illegible]	+52.[illegible]	+3.530	348 53	23 15.5	32 34	2 10.3	+1.[illegible]	+1.[illegible]	+4.[illegible]	+0.[illegible]

FOR WASHINGTON MEAN MIDNIGHT.

Solar Day. (Sid. Hour.)		τ	f		G		H		Log g.	Log h.	i	Log i.
			In Arc.	In Time.	In Arc.	In Time.	In Arc.	In Time.				
		y	"	s	° ′	h m	° ′	h m			"	
Nov.	16	0.8792	+52.95	+3.530	348 53	23 15.5	32 34	2 10.3	+1.3704	+1.2991	+4.65	+0.6675
	17	0.8819	53.06	3.537	348 54	23 15.6	31 35	2 6.3	1.3712	1.2997	4.53	0.6565
h	18	0.8847	53.14	3.543	348 56	23 15.7	30 36	2 2.4	1.3718	1.3003	4.41	0.6450
(4.0)	19	0.8874	53.22	3.548	349 1	23 16.1	29 38	1 58.5	1.3723	1.3009	4.29	0.6329
	20	0.8902	53.30	3.553	349 8	23 16.5	28 40	1 54.7	1.3729	1.3014	4.17	0.6202
	21	0.8929	+53.41	+3.561	349 17	23 17.1	27 42	1 50.8	+1.3735	+1.3019	+4.05	+0.6070
	22	0.8956	53.57	3.571	349 28	23 17.9	26 44	1 46.9	1.3746	1.3025	3.93	0.5933
	23	0.8984	53.77	3.585	349 40	23 18.7	25 47	1 43.1	1.3759	1.3030	3.80	0.5790
	24	0.9011	54.00	3.600	349 50	23 19.3	24 49	1 39.3	1.3776	1.3035	3.67	0.5640
	25	0.9039	54.25	3.617	349 57	23 19.8	23 52	1 35.5	1.3794	1.3040	3.54	0.5484
	26	0.9066	+54.52	+3.635	350 3	23 20.2	22 55	1 31.7	+1.3814	+1.3045	+3.41	+0.5322
	27	0.9093	54.75	3.650	350 5	23 20.3	21 57	1 27.8	1.3832	1.3050	3.28	0.5154
	28	0.9121	54.96	3.664	350 6	23 20.4	21 0	1 24.0	1.3849	1.3054	3.14	0.4975
	29	0.9148	55.15	3.677	350 5	23 20.3	20 3	1 20.2	1.3863	1.3058	3.01	0.4786
	30	0.9176	55.29	3.686	350 4	23 20.3	19 6	1 16.4	1.3875	1.3062	2.87	0.4587
Dec.	1	0.9203	+55.39	+3.693	350 4	23 20.3	18 9	1 12.6	+1.3883	+1.3066	+2.74	+0.4377
	2	0.9230	55.47	3.698	350 6	23 20.4	17 12	1 8.8	1.3889	1.3070	2.61	0.4155
	3	0.9258	55.56	3.703	350 11	23 20.7	16 15	1 5.0	1.3894	1.3074	2.47	0.3920
h	4	0.9285	55.64	3.709	350 18	23 21.2	15 18	1 1.2	1.3900	1.3078	2.33	0.3670
(5.0)	5	0.9313	55.77	3.718	350 27	23 21.8	14 22	0 57.5	1.3908	1.3081	2.19	0.3402
	6	0.9340	+55.93	+3.729	350 36	23 22.4	13 26	0 53.7	+1.3918	+1.3084	+2.05	+0.3116
	7	0.9367	56.12	3.741	350 45	23 23.0	12 29	0 49.9	1.3931	1.3087	1.91	0.2811
	8	0.9395	56.35	3.757	350 53	23 23.6	11 33	0 46.2	1.3947	1.3090	1.77	0.2476
	9	0.9422	56.60	3.773	350 58	23 23.9	10 36	0 42.4	1.3965	1.3093	1.63	0.2114
	10	0.9450	56.86	3.791	351 1	23 24.1	9 40	0 38.7	1.3984	1.3095	1.48	0.1719
	11	0.9477	+57.07	+3.805	351 1	23 24.1	8 44	0 34.9	+1.4001	+1.3097	+1.34	+0.1281
	12	0.9504	57.27	3.818	351 0	23 24.0	7 47	0 31.1	1.4016	1.3099	1.20	0.0793
	13	0.9531	57.42	3.828	350 58	23 23.9	6 51	0 27.4	1.4028	1.3101	1.05	0.0247
	14	0.9559	57.55	3.837	350 56	23 23.7	5 55	0 23.7	1.4039	1.3102	0.91	9.9612
	15	0.9586	57.66	3.844	350 56	23 23.7	4 59	0 19.9	1.4047	1.3103	0.76	9.8871
	16	0.9613	+57.70	+3.851	350 57	23 23.8	4 3	0 16.2	+1.4053	+1.3104	+0.62	+9.7971
	17	0.9640	57.86	3.857	351 1	23 24.1	3 7	0 12.5	1.4060	1.3105	0.48	9.6830
	18	0.9668	57.98	3.865	351 8	23 24.5	2 11	0 8.7	1.4068	1.3105	0.33	9.5292
h	19	0.9695	58.15	3.877	351 15	23 25.0	1 15	0 5.0	1.4079	1.3106	0.19	9.2860
(6.0)	20	0.9723	58.35	3.890	351 24	23 25.6	0 19	0 1.3	1.4093	1.3106	+0.04	+8.6893
	21	0.9750	+58.60	+3.907	351 31	23 26.1	359 23	23 57.5	+1.4110	+1.3106	-0.10	-8.9809
	22	0.9777	58.86	3.924	351 37	23 26.5	358 27	23 53.8	1.4128	1.3105	0.24	9.3811
	23	0.9805	59.13	3.942	351 40	23 26.7	357 31	23 50.1	1.4147	1.3105	0.39	9.5857
	24	0.9832	59.40	3.960	351 41	23 26.7	356 35	23 46.3	1.4167	1.3104	0.53	9.7241
	25	0.9860	59.65	3.977	351 39	23 26.6	355 39	23 42.6	1.4185	1.3103	0.68	9.8286
	26	0.9887	+59.84	+3.989	351 36	23 26.4	354 42	23 38.8	+1.4200	+1.3102	-0.82	-9.9120
	27	0.9914	60.01	4.001	351 33	23 26.2	353 46	23 35.1	1.4212	1.3101	0.96	9.9832
	28	0.9942	60.13	4.009	351 30	23 26.0	352 50	23 31.3	1.4222	1.3100	1.11	0.0435
	29	0.9969	60.23	4.015	351 29	23 25.9	351 54	23 27.6	1.4229	1.3098	1.25	0.0962
	30	0.9997	60.31	4.021	351 30	23 26.0	350 58	23 23.9	1.4235	1.3096	1.39	0.1434
	31	1.0024	+60.40	+4.027	351 33	23 26.2	350 1	23 20.1	+1.4241	+1.3094	-1.53	-0.1857
	32	1.0051	+60.51	+4.034	351 39	23 26.6	349 5	23 16.3	+1.4248	+1.3092	-1.68	-0.2242

MEAN PLACES FOR 1897.0. (January $0^d.0 - 0^d.624$, Washington.)

Name of Star	Magnitude	Right Ascension	Annual Variation	Declination	Annual Variation
		h m s	s	° ′ ″	″
α Andromedæ . .	2.1	0 3 3.760	+3.0928	+28 31 18.26	+19.884
* β Cassiopeiæ . . .	2.4	0 3 40.830	3.1781	+58 34 52.77	19.880
* 22 Andromedæ . .	4.9	0 4 58.[illegible]	3.1045	+45 29 55.94	20.[illegible]
4 Draconis (H.) . S. P.	5.1	0 7 22.957	[illegible]	+101 48 41.17	20.021
γ Pegasi (*Algenib*). .	2.8	0 7 55.877	3.0845	+14 36 39.21	20.022
* δ Andromedæ . .	4.4	0 12 56.787	+3.1245	+36 12 50.81	+19.980
* ι Ceti . . .	3.6	0 14 10.567	3.0526	− 9 23 42.82	19.954
* 6 Ursæ Minoris . S. P.	6.2	0 14 21.762	0.2310	+91 43 44.15	19.940
* 44 Piscium . . .	5.8	0 20 7.322	3.0734	+ 1 22 9.34	19.951
β Hydri	2.8	0 20 20.121	3.2190	−77 50 3.82	20.181
12 Ceti	6.0	0 24 46.916	+3.0611	− 4 31 34.92	+19.934
ε Draconis . . S. P.	3.8	0 29 5.353	2.9878	+109 38 38.77	19.885
* π Andromedæ . .	4.4	0 31 22.677	3.1924	+33 9 8.23	19.860
α Cassiopeiæ (*var.*) .	2.3	0 34 39.653	3.3780	+55 58 20.53	19.782
β Ceti	2.2	0 38 25.191	3.0139	−18 33 7.52	19.776
21 Cassiopeiæ . . .	5.7	0 38 50.270	+3.8699	+74 25 30.30	+19.744
* ο Cassiopeiæ . . .	4.7	0 38 58.991	3.3223	+47 43 14.00	19.748
* δ Piscium . . .	4.8	0 43 20.243	3.1080	+ 7 1 28.15	19.646
32^H Camelop (H.) . S. P.	5.2	0 48 22.209	0.4087	+96 1 38.40	19.595
* γ Cassiopeiæ . . .	2.3	0 50 29.353	3.5944	+60 9 31.87	19.555
* μ Andromedæ . .	4.0	0 51 2.042	+3.3134	+37 56 26.78	+19.609
* 43 Cephei (H.) . .	4.6	0 54 39.234	7.3301	+85 42 16.48	19.485
ε Piscium . . .	4.3	0 57 35.805	3.1028	+ 7 20 8.03	19.446
β Andromedæ . .	2.2	1 3 57.844	3.3465	+35 4 27.83	19.155
* κ Tucanæ . . .	4.9	1 12 16.792	2.0538	−69 25 22.98	19.163
* ζ Piscium . . .	5.1	1 12 29.091	+3.0900	+ 3 4 19.32	+19.018
θ Ceti . . .	3.6	1 18 52.469	2.9972	− 8 42 53.52	18.657
α Ursæ Minoris (*Polaris*)	2.2	1 21 18.605	24.6175	+88 45 30.31	18.802
38 Cassiopeiæ . . .	5.9	1 23 33.614	4.3858	+69 44 3.94	18.690
* σ Octantis . . S. P.	5.4	1 24 17.278	8.8603	−94 44 31.28	18.714
η Piscium . . .	3.7	1 25 58.246	+3.2056	+14 48 53.39	+18.631
* υ Andromedæ . .	4.2	1 30 45.446	3.5071	+40 53 25.53	18.131
* π Piscium . . .	5.5	1 31 38.263	3.1751	+11 36 53.30	18.519
α Eridani (*Achernar*) .	0.4	1 33 52.318	2.2314	−57 45 36.36	18.346
* ν Piscium . . .	4.6	1 36 4.235	3.1185	+ 4 57 58.86	18.315
ο Piscium . . .	4.4	1 39 57.234	+3.1631	+ 8 38 20.74	+18.202
* ζ Ceti	3.6	1 46 22.580	2.9619	−10 50 42.23	17.858
β Arietis . . .	2.8	1 48 56.919	3.3049	+20 18 16.13	17.711
50 Cassiopeiæ . . .	4.1	1 54 37.073	5.0254	+71 55 22.33	17.619
* γ Andromedæ . .	2.2	1 57 34.481	3.6634	+41 50 7.43	17.423
α Arietis . . .	2.1	2 1 21.951	+3.3725	+22 58 31.18	+17.154
α Draconis . . S. P.	3.7	2 1 36.[illegible]	1.6241	+115 7 55.35	17.[illegible]
* β Trianguli . . .	3.1	2 3 24.821	3.5592	+34 30 0.21	17.184
ξ^1 Ceti	4.5	2 7 32.[illegible]	+3.1749	+ 8 21 48.40	17.012
* 4 Ursæ Minoris . S. P.	4.9	2 9 14.[illegible]	0.3110	+101 55 6.29	16.[illegible]
* γ Trianguli . . .	4.3	2 11 11.[illegible]	+3.5532	+33 22 15.03	+16.824
* 67 Ceti	5.6	2 11 [illegible]	[illegible]	− 6 53 49.10	16.715
* δ Hydri . . .	4.2	2 19 55.[illegible]	1.0569	−69 7 40.83	16.443
ι Cassiopeiæ . . .	4.6	2 20 34.223	4.9721	+66 56 21.11	16.402
ξ^2 Ceti . . .	4.5	2 22 4.[illegible]	+3.1868	+ 7 59 53.72	+16.274

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January $0^d.0-0^d.624$, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
5 Ursæ Minoris . S. P.	4.5	2 27 44.501	− 0.1813	+103 50 46.23	+16.012
* μ Hydri	5.3	2 33 50.567	− 1.4156	− 79 33 30.44	15.690
* δ Ceti	4.1	2 34 12.181	+ 3.0734	− 0 6 57.84	15.676
* θ Persei	4.2	2 37 9.772	4.0736	+ 48 47 33.52	15.430
γ Ceti	3.6	2 37 57.751	3.1040	+ 2 48 5.85	15.317
* σ Arietis . . .	5.5	2 45 48.296	+ 3.3056	+ 14 39 26.94	+14.990
β Ursæ Minoris . S. P.	2.2	2 51 0.238	− 0.2233	+105 25 24.99	14.720
* 47 Cephei (H.) . .	5.7	2 52 23.011	+ 7.7563	+ 79 0 40.85	14.639
* ε Arietis . . .	4.6	2 53 19.281	3.4224	+ 20 55 42.28	14.585
α Ceti	2.6	2 56 53.655	3.1311	+ 3 41 7.92	14.285
* β Persei (*Algol*) (*var.*) .	2.3	3 1 27.890	+ 3.8863	+ 40 33 31.04	+14.090
48 Cephei (H.) . .	5.5	3 7 14.647	7.4337	+ 77 21 21.88	13.671
ζ Arietis . . .	4.8	3 8 58.795	3.4407	+ 20 39 45.39	13.529
α Persei	1.9	3 16 58.077	+ 4.2612	+ 49 29 39.85	13.057
* ι Hydri	5.7	3 18 31.537	− 1.5835	− 77 45 52.19	13.039
* ρ Octantis . S. P.	5.7	3 19 32.115	+13.0830	− 95 52 42.41	+12.879
γ^2 Ursæ Minoris . S. P.	3.2	3 20 53.497	− 0.1280	+107 47 58.22	12.812
* f Tauri	4.3	3 25 11.104	+ 3.3059	+ 12 35 1.27	12.541
ε Eridani . . .	3.7	3 28 4.627	2.8240	− 9 48 24.34	12.370
δ Persei	3.1	3 35 35.412	4.2531	+ 47 27 28.70	11.772
* γ Camelopardalis (H.) .	4.6	3 39 28.835	+ 6.2505	+ 71 0 52.63	+11.489
η Tauri	3.1	3 41 21.613	3.5582	+ 23 47 11.20	11.348
ζ Persei	3.0	3 47 39.382	+ 3.7619	+ 31 34 38.82	10.915
ζ Ursæ Minoris . S. P.	4.6	3 47 44.239	− 2.2362	+101 53 19.30	10.941
* γ Hydri	3.3	3 48 49.809	− 0.9885	− 74 33 16.34	10.990
* ε Persei	3.0	3 50 56.369	+ 4.0121	+ 39 42 43.47	+10.685
γ Eridani . . .	3.0	3 53 13.461	2.7989	− 13 48 5.93	10.420
* A^1 Tauri	4.6	3 58 36.320	3.5411	+ 21 48 0.35	10.051
* c Persei	4.3	4 1 10.940	4.3398	+ 47 26 14.18	9.899
Groombr. 2320 . S. P.	5.5	4 6 2.173	0.1428	+111 55 6.34	9.496
* o^1 Eridani . . .	4.2	4 6 50.240	+ 2.9270	− 7 6 22.79	+ 9.589
γ Tauri	3.8	4 13 55.875	+ 3.4098	+ 15 22 43.66	8.925
* η Ursæ Minoris . S. P.	5.0	4 20 30.790	− 1.8078	+104 0 26.23	8.180
η Draconis . . S. P.	2.8	4 22 35.905	+ 0.8077	+118 15 9.85	8.213
ε Tauri	3.6	4 22 36.074	+ 3.4984	+ 18 57 6.48	8.223
* δ Mensæ	5.6	4 24 56.440	− 4.2029	− 80 27 20.79	+ 8.087
* m Persei	6.0	4 26 10.026	+ 4.2120	+ 42 50 36.70	7.963
A Draconis . . S. P.	5.0	4 28 11.242	− 0.1319	+111 0 33.26	7.799
α Tauri (*Aldebaran*) .	1.0	4 30 0.578	+ 3.4382	+ 16 18 7.50	7.482
* τ Tauri	4.5	4 36 3.729	3.5963	+ 22 45 32.86	7.155
α Camelopardalis . .	4.4	4 43 48.310	+ 5.9301	+ 66 10 2.66	+ 6.543
* i Tauri	5.2	4 45 20.867	3.5061	+ 18 39 51.46	6.371
ι Aurigæ . . .	2.8	4 50 17.124	3.9017	+ 33 0 10.27	5.985
* ζ Aurigæ . . .	3.9	4 55 16.643	+ 4.1864	+ 40 55 31.28	5.582
ε Ursæ Minoris . S. P.	4.5	4 56 31.378	− 6.3079	+ 97 47 36.05	5.485
11 Orionis . . .	4.7	4 58 40.951	+ 3.4249	+ 15 15 37.64	+ 5.262
* β Eridani . . .	2.9	5 2 47.156	2.9488	− 5 13 10.68	4.896
α Aurigæ (*Capella*) .	0.1	5 9 4.767	4.4259	+ 45 53 34.74	3.983
β Orionis (*Rigel*) . .	0.3	5 9 35.248	2.8816	− 8 19 14.84	4.369
* τ Orionis . . .	3.8	5 12 36.296	+ 2.9130	− 6 57 21.58	+ 4.106

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January $0^d.0 - 0^d.624$, Washington.)

	Name of Star.		Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
				h m s	s	° ′ ″	″
	β Tauri		1.8	5 19 46.822	+ 3.7899	+ 28 31 12.86	+3.321
	Groombridge 966		6.4	5 25 57.581	8.0061	+ 74 58 30.90	2.986
*	χ Aurigæ		5.0	5 26 1.515	3.9096	+ 32 6 57.73	2.981
	δ Orionis (var.)		2.3	5 26 44.654	3.0637	− 0 22 31.96	2.895
	α Leporis		2.7	5 28 11.232	2.6450	− 17 53 46.11	2.774
*	Groombridge 944		6.4	5 28 59.084	+18.6982	+ 85 8 42.23	+2.719
	ε Orionis		1.8	5 30 59.191	3.0426	− 1 16 4.16	2.533
	α Columbæ		2.7	5 35 55.222	+ 2.1720	− 34 7 45.18	2.098
	ω Draconis	S.P.	4.9	5 37 33.329	− 0.3550	+111 11 40.15	2.637
*	κ Orionis		2.3	5 42 52.255	+ 2.8450	− 9 42 22.85	2.900
	φ² Draconis	S.P.	4.8	5 43 46.129	− 1.0776	+107 48 2.60	+2.690
*	ν Aurigæ		4.1	5 44 21.000	+ 4.1547	+ 39 7 5.46	2.405
*	δ Doradus		4.4	5 44 35.490	0.1054	− 65 46 26.92	2.327
	α Orionis (var.)		0.9	5 49 35.714	3.2472	+ 7 23 15.66	0.918
*	β Aurigæ		2.0	5 51 58.424	4.4000	+ 44 56 11.98	0.690
*	θ Aurigæ		2.9	5 52 41.900	+ 4.0922	+ 37 12 18.64	+0.550
	ν Orionis		4.5	6 1 41.536	+ 3.4275	+ 14 46 50.02	−0.178
	δ Ursæ Minoris	S.P.	4.4	6 5 31.319	−19.4810	+ 93 23 13.80	0.334
	22 Camelopardalis (H.)		4.7	6 7 29.523	+ 6.6167	+ 69 21 20.40	0.773
*	η Geminorum		3.5	6 8 39.659	3.6228	+ 22 32 11.45	0.774
	μ Geminorum		3.2	6 16 43.794	+ 3.6314	+ 22 33 58.34	−1.584
*	ψ¹ Aurigæ		5.1	6 16 58.001	4.6061	+ 49 20 24.81	1.494
	α Argûs (Canopus)		−0.8	6 21 40.000	1.3305	− 52 38 21.81	1.884
*	ν Geminorum		4.2	6 22 50.831	+ 3.5690	+ 20 16 37.64	2.018
*	χ Draconis	S.P.	5.3	6 22 54.776	− 1.0802	+107 18 43.11	1.627
	γ Geminorum		2.0	6 31 45.712	+ 3.4672	+ 16 29 13.31	−2.818
*	ε Geminorum		3.2	6 37 35.700	3.6931	+ 25 13 58.68	3.289
*	ψ⁵ Aurigæ		5.4	6 39 18.577	4.3083	+ 43 40 46.96	3.275
†	α Canis Majoris (Sirius)		−1.4	6 40 36.563	2.6436	− 16 34 29.82	4.741
*	θ Geminorum		3.7	6 46 0.093	+ 3.9600	+ 34 5 7.48	4.030
*	ζ Mensæ		5.6	6 48 37.202	− 4.9140	− 80 42 18.59	−4.141
	50 Draconis	S.P.	5.6	6 49 41.685	− 1.9122	+104 41 15.12	4.389
	51 Cephei (H.)		5.3	6 52 13.922	+29.7190	+ 87 12 34.13	4.568
	ε Canis Majoris		1.5	6 54 34.693	2.3578	− 28 49 55.68	4.743
*	ζ Geminorum (var.)		4.0	6 58 0.058	3.5600	+ 20 43 16.05	5.039
	δ Canis Majoris		1.9	7 4 12.186	+ 2.4486	− 26 13 46.75	−5.535
*	63 Aurigæ		5.2	7 4 34.315	4.1355	+ 39 29 18.88	5.557
*	25 Camelopardalis		5.3	7 9 25.224	+12.9215	+ 82 36 34.78	6.014
*	γ² Volantis (var.)		3.9	7 9 37.124	− 0.4960	− 70 19 55.58	5.999
	δ Draconis	S.P.	3.1	7 12 31.039	+ 0.0077	+112 31 10.77	6.327
	δ Geminorum		3.5	7 13 58.334	+ 3.5874	+ 22 10 18.51	−6.376
	τ Draconis	S.P.	4.5	7 17 32.185	− 1.1214	+106 50 8.76	6.764
	Piazzi vii, 67		5.7	7 20 10.055	+ 6.2921	+ 68 40 33.17	6.910
*	β Canis Minoris		3.1	7 21 31.971	+ 3.2594	+ 8 29 45.02	7.024
	λ Ursæ Minoris	S.P.	6.5	7 25 52.970	−67.0115	+ 91 1 5.51	7.348
	α² Geminorum (Castor)		1.9	7 28 1.797	+ 3.8374	+ 32 6 52.13	−7.591
†	α Canis Min. (Procyon)		0.5	7 33 54.624	3.1432	+ 5 29 19.69	9.024
	β Geminorum (Pollux)		1.2	7 39 0.847	3.6782	+ 28 16 29.40	8.452
	φ Geminorum		5.0	7 47 11.679	3.6790	+ 27 1 56.45	9.065
*	26 Lyncis		5.8	7 47 12.807	+ 4.1848	+ 47 49 52.69	−9.080

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

† Periodic corrections given in the Appendix are still to be applied to the positions of Sirius and Procyon.

MEAN PLACES FOR 1897.0. (January $0^d.0 - 0^d.624$, Washington.)

	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
*	Groombridge 1374 .	5.6	7 47 51.945	+7.2720	+ 74 11 34.11	− 9.127
	ϵ Draconis . . S. P.	3.9	7 48 31.188	−0.1825	+109 59 39.78	9.172
*	ω^1 Cancri . . .	6.0	7 54 42.008	+3.6363	+ 25 40 29.19	9.618
	3 Ursæ Majoris (H.) .	5.5	8 2 34.141	6.0399	+ 68 46 37.23	10.218
	15 Argûs (ρ) . . .	3.1	8 3 9.451	2.5545	− 24 0 26.77	10.218
*	ζ^1 Cancri . . .	4.8	8 6 18.320	+3.4456	+ 17 57 27.80	−10.635
*	β Cancri . . .	3.8	8 10 55.788	+3.2580	+ 9 30 9.97	10.886
	κ Cephei (*pr.*) . S. P.	4.4	8 12 21.448	−1.9357	+102 35 55.52	10.976
*	30 Monocerotis . .	3.9	8 20 30.822	+2.9998	− 3 34 13.37	11.533
*	θ Chamæleontis . .	4.6	8 23 43.599	−1.7227	− 77 9 7.76	11.745
	η Cancri . . .	5.4	8 26 45.238	+3.4773	+ 20 47 27.33	−12.034
	Groombr. 3241 . S. P.	6.5	8 30 27.102	−0.2250	+107 49 2.12	12.219
*	σ Hydræ . . .	4.5	8 33 22.607	+3.1454	+ 3 42 10.46	12.461
*	γ Cancri . . .	4.9	8 37 19.591	3.4794	+ 21 50 19.56	12.753
	ϵ Hydræ . . .	3.5	8 41 19.339	3.1812	+ 6 47 47.74	13.031
*	σ^2 Cancri (*mean*) . .	5.5	8 47 57.689	+3.6719	+ 30 58 9.74	−13.437
	ι Ursæ Majoris . .	3.3	8 52 9.387	+4.1300	+ 48 26 45.29	13.937
	12 Year Cat. 1879 . S. P.	5.3	8 52 15.718	−2.5729	+ 99 50 2.46	13.662
	σ^2 Ursæ Majoris . .	5.0	9 1 19.958	+5.3447	+ 67 33 9.67	14.317
	κ Cancri . . .	5.1	9 2 10.179	3.2551	+ 11 4 57.75	14.316
*	θ Hydræ . . .	4.0	9 9 0.390	+3.1257	+ 2 44 55.19	−15.041
*	β Argûs	2.0	9 12 4.147	0.6751	− 69 17 34.49	14.810
	ι Argûs	2.6	9 14 19.782	1.6009	− 58 50 33.62	15.009
*	α Lyncis . . .	3.3	9 14 46.826	3.6672	+ 34 49 40.19	15.053
	α Cephei . . S. P.	2.6	9 16 7.311	1.4360	+117 51 3.29	15.184
	1 Draconis (H.) . .	4.5	9 22 24.538	+8.9402	+ 81 46 53.53	−15.514
	α Hydræ . . .	2.1	9 22 31.568	2.9490	− 8 12 44.04	15.472
	d Ursæ Majoris . .	4.8	9 25 22.482	5.3882	+ 70 16 58.25	15.598
	θ Ursæ Majoris . .	3.2	9 25 58.069	4.0370	+ 52 8 47.70	16.245
	β Cephei (*pr.*) . S. P.	3.4	9 27 19.854	0.7915	+109 53 29.61	15.761
*	10 Leonis Minoris . .	4.7	9 27 54.922	+3.6920	+ 36 51 17.46	−15.808
*	o Leonis . . .	3.8	9 35 39.229	+3.2062	+ 10 21 38.96	16.243
*	ζ Chamæleontis . .	5.2	9 36 55.357	−1.5843	− 80 28 42.95	16.276
	ϵ Leonis . . .	3.2	9 40 0.332	+3.4137	+ 24 14 54.23	16.448
	11 Cephei . . S. P.	4.8	9 40 24.932	0.8989	+109 9 46.16	16.544
	μ Leonis . . .	4.0	9 46 54.389	+3.4206	+ 26 29 31.28	−16.817
*	19 Leonis Minoris . .	5.2	9 51 22.661	3.6926	+ 41 32 46.04	16.984
	79 Draconis . . S. P.	6.6	9 51 34.727	0.7256	+106 47 5.84	17.017
*	π Leonis . . .	5.0	9 54 46.247	3.1737	+ 8 32 18.00	17.155
	α Leonis (*Regulus*) .	1.3	10 2 53.230	3.1998	+ 12 28 13.98	17.491
	32 Ursæ Majoris . .	5.7	10 10 33.359	+4.4123	+ 65 37 18.94	−17.834
*	λ Ursæ Majoris . .	3.6	10 10 53.148	3.6367	+ 43 25 41.98	17.891
	γ^1 Leonis . . .	2.5	10 14 17.670	3.3137	+ 20 21 45.10	18.103
*	μ Hydræ . . .	4.1	10 21 6.577	2.9010	− 16 18 39.22	18.324
*	β Leonis Minoris . .	4.3	10 21 55.718	3.4844	+ 37 14 6.12	18.331
*	α Antliæ . . .	4.5	10 22 26.253	+2.7398	− 30 32 37.38	−18.230
	9 Draconis (H.) . .	5.0	10 26 21.027	5.2420	+ 76 14 36.26	18.418
	ρ Leonis . . .	4.0	10 27 23.331	3.1635	+ 9 50 11.48	18.446
	226 Cephei (B.) . . S. P.	5.7	10 30 28.068	1.0748	+104 18 15.92	18.533
*	β Octantis . . S. P.	4.4	10 35 31.693	+6.4355	− 98 4 43.54	−18.708

*Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January 0^d 0 0^d 624, Washington.)

	Name of Star		Magnitude	Right Ascension	Annual Variation	Declination	Annual Variation
				h m s	s	° ′ ″	″
*	41 Leonis Minoris . .		5.1	10 37 48.974	+3.2605	+ 23 43 39.48	−18.751
	η Argûs (var.) . .		1–6	10 41 3.790	2.3151	− 59 8 34.83	18.878
	l Leonis . .		5.3	10 43 50.652	3.1570	+ 11 5 24.57	18.984
*	δ² Chamæleontis . .		4.7	10 44 49.326	0.6907	− 79 59 49.90	18.984
	ι Cephei	S.P.	3.6	10 46 0.060	2.1235	+114 20 29.19	18.884
*	46 Leonis Minoris . .		3.9	10 47 33.140	+3.3676	+ 34 46 13.37	−19.307
*	Groombridge 1706 .		6.3	10 51 43.042	4.9458	+ 78 19 19.13	19.198
	α Ursæ Majoris . .		2.0	10 57 22.350	+3.7414	+ 62 18 25.40	19.375
*	η Octantis . . .		6.1	11 0 3.348	−0.2373	− 84 2 23.40	19.370
*	ρ³ Leonis . . .		6.2	11 1 38.878	+3.0996	+ 2 30 52.60	19.490
*	ψ Ursæ Majoris . .		3.2	11 3 52.416	+3.3906	+ 45 3 25.05	−19.513
	δ Leonis . . .		2.7	11 8 37.885	3.1973	+ 21 5 16.58	19.603
*	ν Ursæ Majoris . .		3.7	11 12 55.150	3.2559	+ 33 39 23.04	19.580
	δ Crateris . . .		3.9	11 14 11.470	2.9968	− 14 13 16.87	19.470
	ο Cephei .	.S.P.	5.1	11 14 23.786	2.4471	+112 27 7.07	19.674
	τ Leonis . . .		5.1	11 22 38.416	+3.0899	+ 3 25 24.33	−19.808
	λ Draconis . . .		4.0	11 25 17.316	3.6131	+ 69 53 58.25	19.844
*	ξ Hydræ . . .		3.8	11 27 56.087	2.9442	− 31 17 16.17	19.890
	υ Leonis . . .		4.4	11 31 40.502	3.0713	− 0 15 18.63	19.864
	γ Cephei .	.S.P.	3.5	11 35 6.894	2.4210	+102 56 53.49	20.078
*	χ Ursæ Majoris . .		3.9	11 40 36.800	+3.1878	+ 48 21 1.51	−19.964
	β Leonis . . .		2.2	11 43 48.377	3.0634	+ 15 8 52.00	20.122
	γ Ursæ Majoris . .		2.4	11 48 24.924	3.1785	+ 54 16 2.26	20.048
	Groombr. 4163	.S.P.	6.6	11 49 49.291	2.8720	+106 9 46.47	20.023
*	π Virginis . . .		4.6	11 55 35.652	3.0740	+ 7 11 18.48	20.087
	ο Virginis . . .		4.3	11 59 57.742	+3.0573	+ 9 18 18.03	−20.014
*	ε Corvi		3.2	12 4 49.618	3.0840	− 22 2 48.91	20.048
	4 Draconis (H.) . .		5.1	12 7 22.957	2.8667	+ 78 11 18.83	20.021
	γ Corvi . . .		2.7	12 10 30.527	3.0804	− 16 58 12.32	20.015
*	2 Canum Venaticorum .		6.0	12 10 57.972	3.0203	+ 41 14 1.00	20.063
	β Chamæleontis . .		4.5	12 12 18.131	+3.4139	− 78 44 24.38	−20.000
*	6 Ursæ Minoris . .		6.2	12 14 21.762	0.2310	+ 88 16 15.85	19.940
	η Virginis . . .		4.0	12 14 38.181	3.0688	− 0 5 40.20	20.030
	α¹ Crucis . . .		0.9	12 20 52.105	3.3003	− 62 31 41.77	20.010
*	δ Corvi . . .		3.1	12 24 32.211	3.1034	− 15 56 30.59	20.081
*	β Canum Venaticorum		4.4	12 28 51.128	+2.8581	+ 41 55 1.40	−19.611
	β Corvi		2.8	12 28 58.544	3.1429	− 22 49 37.99	19.958
	κ Draconis		3.8	12 29 5.353	2.5958	+ 70 21 21.23	19.885
*	γ Virginis (mean)		2.9	12 36 26.451	3.0386	− 0 53 5.06	19.806
	21 Cassiopeiæ	S.P.	5.7	12 38 50.270	3.8029	+105 34 29.70	19.744
*	31 Comæ Berenices .		5.1	12 46 41.033	+2.9225	+ 28 6 3.67	−19.654
	32² Camelopardalis (H.)		5.2	12 48 22.869	0.4087	+ 83 58 21.60	19.505
*	γ Cassiopeiæ	S.P.	2.3	12 50 29.353	3.9844	+119 50 28.13	19.555
	α Canum Venaticorum		3.2	12 51 12.604	2.8143	+ 38 52 28.36	19.505
*	43 Cephei (H.)	.S.P.	4.6	12 54 39.234	7.3391	+ 94 17 43.52	19.485
*	δ Muscæ . . .		3.8	12 55 12.344	+4.2148	− 70 59 34.41	−19.465
*	ε Virginis . . .		3.1	12 57 3.016	2.9879	+ 11 30 45.73	19.409
	θ Virginis . .		4.6	13 4 36.959	3.1017	− 4 59 21.06	19.300
*	20 Canum Venaticorum .		4.7	13 12 55.472	2.7058	+ 41 6 53.28	19.006
	α Virginis (Spica) .		1.1	13 19 45.746	+3.1545	− 10 37 25.61	−18.[illegible]

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January $0^d.0-0^d.624$, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
α Urs. Min. (*Polaris*) S. P.	2.2	13 21 18.965	+24.6375	+ 91 14 29.69	--18.802
38 Cassiopeiæ . . S. P.	5.9	13 23 33.614	4.3888	+110 15 56.06	18.659
* κ Octantis . . .	5.4	13 24 17.278	8.8603	− 85 15 28.72	18.714
ζ Virginis . . .	3.6	13 29 26.649	3.0536	− 0 4 9.49	18.505
* B. A. C. 4536 . .	5.0	13 30 11.842	2.6816	+ 37 42 36.07	18.528
* *m* Virginis . . .	5.4	13 36 12.323	+ 3.1441	− 8 10 59.52	−18.271
η Ursæ Majoris . .	1.9	13 43 29.007	2.3705	+ 49 49 37.94	18.067
η Bootis . . .	2.8	13 49 46.835	2.8567	+ 18 54 50.50	18.156
50 Cassiopeiæ . . S. P.	4.1	13 54 37.973	5.0254	+108 4 37.67	17.619
* θ Apodis (*var.*) . .	5.0	13 55 17.643	5.6968	− 76 17 56.53	17.562
β Centauri . . .	0.7	13 56 32.920	+ 4.1840	− 59 52 34.36	−17.568
* π Hydræ . . .	3.6	14 0 30.222	3.4026	− 26 11 6.85	17.345
α Draconis . . .	3.7	14 1 36.098	1.6241	+ 64 52 4.65	17.290
* *d* Bootis . . .	4.8	14 5 42.144	2.7386	+ 25 34 46.15	17.184
* κ Virginis . . .	4.2	14 7 24.047	+ 3.1948	− 9 47 39.72	16.906
* 4 Ursæ Minoris . .	4.9	14 9 14.807	− 0.3110	+ 78 1 53.71	−16.904
* δ Octantis . . .	5.0	14 10 24.473	+ 9.0537	− 83 11 44.54	16.903
α Bootis (*Arcturus*) .	0.2	14 10 57.799	2.7352	+ 19 43 6.97	18.868
* λ Bootis . . .	4.3	14 12 28.086	2.2823	+ 46 33 40.25	16.646
* λ Virginis[a] . . .	4.7	14 13 32.136	3.2390	− 12 53 49.44	16.727
ι Cassiopeiæ . . S. P.	4.6	14 20 34.223	+ 4.8721	+113 3 38.89	−16.402
θ Bootis . . .	4.1	14 21 41.494	2.0441	+ 52 19 36.22	16.749
ρ Bootis . . .	3.6	14 27 23.538	+ 2.5876	+ 30 49 24.31	15.944
5 Ursæ Minoris . .	4.5	14 27 44.501	− 0.1813	+ 76 9 13.77	16.012
α Centauri (*mean*) . .	−0.1	14 32 36.132	+ 4.0400	− 60 24 36.72	15.031
* μ Hydri . . . S. P.	5.3	14 33 50.567	− 1.4156	−100 26 29.56	−15.690
* 33 Bootis . . .	5.3	14 35 0.247	+ 2.2342	+ 44 50 55.51	15.695
* α Apodis . . .	4.1	14 35 4.158	7.2263	− 78 36 26.89	15.636
ε Bootis . . .	2.6	14 40 29.392	2.6214	+ 27 30 30.12	15.323
α² Libræ	2.9	14 45 10.734	+ 3.3107	− 15 36 49.63	15.144
β Ursæ Minoris . .	2.2	14 51 0.238	− 0.2233	+ 74 34 35.01	−14.720
* 47 Cephei (H.) . S. P.	5.7	14 52 23.011	+ 7.7563	+100 59 19.15	14.639
* γ Scorpii . . .	3.4	14 58 2.412	3.5009	− 24 52 37.66	14.352
β Bootis . . .	3.7	14 58 3.998	2.2601	+ 40 47 48.14	14.343
48 Cephei (H.) . S. P.	5.5	15 7 14.647	7.4337	+102 38 38.12	13.671
* δ Bootis . . .	3.5	15 11 21.073	+ 2.4210	+ 33 41 57.20	−13.564
β Libræ	2.9	15 11 27.810	3.2226	− 9 0 10.48	13.484
* ρ Octantis . . .	5.7	15 19 32.115	13.0830	− 84 7 17.59	12.879
μ¹ Bootis . . .	4.5	15 20 35.982	+ 2.2664	+ 37 44 18.36	12.761
γ² Ursæ Minoris . .	3.2	15 20 53.497	− 0.1280	+ 72 12 1.78	12.812
* β Coronæ Borealis .	3.9	15 23 34.983	+ 2.4752	+ 29 27 38.04	−12.574
α Coronæ Borealis .	2.3	15 30 19.631	2.5395	+ 27 3 40.58	12.284
α Serpentis . . .	2.7	15 39 11.650	2.9522	+ 6 44 58.46	11.525
* γ Camelop. (H.) . S. P.	4.6	15 39 28.835	6.2505	+108 59 7.37	11.489
ε Serpentis . . .	3.7	15 45 40.880	+ 2.9876	+ 4 47 16.24	11.023
ζ Ursæ Minoris . .	4.6	15 47 44.239	− 2.2362	+ 78 6 40.70	−10.941
ε Coronæ Borealis . .	4.1	15 53 19.459	+ 2.4835	+ 27 10 34.04	10.589
δ Scorpii . . .	2.6	15 54 14.538	3.5399	− 22 19 42.62	10.496
β¹ Scorpii . . .	2.9	15 59 26.841	3.4819	− 19 31 24.77	10.107
* δ¹ Apodis . . .	4.9	16 4 57.250	+ 8.8000	− 78 26 8.46	− 9.649

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January 0d.0 = 0d.624, Washington.)

	Name of Star	Magnitude	Right Ascension	Annual Variation	Declination	Annual Variation
			h m s	s	° ′ ″	″
*	φ Herculis	4.2	16 5 31.204	+ 1.8819	+ 45 12 17.75	−9.563
	Groombridge 2320	5.5	16 6 2.173	0.1428	+ 68 4 53.66	9.496
	δ Ophiuchi	2.8	16 8 56.842	3.1403	− 3 25 44.62	9.484
*	ε Coronæ Borealis (*mean*)	5.3	16 10 49.206	2.2449	+ 34 7 11.42	9.236
	τ Herculis	3.9	16 16 38.617	1.8014	+ 46 33 30.43	8.717
*	γ Apodis	4.0	16 17 39.754	+ 9.0884	− 78 59 56.08	−8.660
*	η Ursæ Minoris	5.0	16 20 30.700	− 1.8078	+ 75 59 33.77	8.180
	η Draconis	2.8	16 22 35.905	+ 0.8077	+ 61 44 50.15	8.213
	α Scorpii (*Antares*)	1.2	16 23 5.462	3.6713	− 26 12 12.20	8.266
	β Herculis	2.8	16 25 47.519	+ 2.5778	+ 21 42 50.69	8.031
	A Draconis	5.0	16 28 11.242	− 0.1319	+ 68 59 26.74	−7.709
	ζ Ophiuchi	2.8	16 31 29.198	+ 3.2997	10 21 30.35	7.532
	α Trianguli Australis	2.2	16 37 45.527	6.3104	− 68 50 17.52	7.091
	η Herculis	3.7	16 39 21.842	2.0541	+ 39 7 5.20	7.000
	α Camelopardalis . S. P.	4.4	16 43 48.310	5.9001	+113 49 57.34	6.543
	κ Ophiuchi	3.4	16 52 47.568	+ 2.8378	+ 9 32 6.83	−5.803
	ε Ursæ Minoris	4.5	16 56 31.378	− 6.3070	+ 82 12 23.95	5.485
	d Herculis	5.3	16 57 48.164	+ 2.2115	+ 33 43 2.78	5.374
*	η Ophiuchi	2.5	17 4 28.192	3.4361	− 15 35 50.62	4.733
	α¹ Herculis (*var.*)	3.2	17 9 57.040	2.7318	+ 14 30 27.83	4.317
*	π Herculis	3.4	17 11 27.598	+ 2.0824	+ 36 55 30.76	−4.207
*	θ Ophiuchi	3.3	17 15 40.980	3.6709	− 24 53 48.48	3.906
	b Ophiuchi (*var.*)	4.4	17 20 4.756	3.6936	− 24 4 49.06	3.607
*	δ Aræ	3.8	17 21 48.112	5.4036	− 60 35 52.87	3.467
	Groombridge 966 S. P.	6.4	17 25 57.581	8.0061	+105 1 29.10	2.986
	β Draconis	3.0	17 28 6.346	+ 1.3538	+ 52 22 38.89	−2.782
*	Groombridge 944 S. P.	6.4	17 28 59.084	18.6[illegible]	+ 94 51 17.77	2.719
	α Ophiuchi	2.2	17 30 9.180	2.7831	+ 12 38 5.96	2.841
*	ι Herculis	4.0	17 36 33.577	+ 1.0729	+ 46 3 39.79	2.048
	ω Draconis	4.9	17 37 33.329	− 0.3530	+ 68 48 19.85	1.637
	μ Herculis	3.5	17 42 25.664	+ 2.3467	+ 27 46 50.84	−1.296
	ψ¹ Draconis	4.8	17 43 46.129	− 1.0276	+ 72 11 57.40	1.092
*	θ Herculis	3.9	17 52 43.160	+ 2.0553	+ 37 15 51.05	0.618
	γ Draconis	2.5	17 54 12.885	1.3918	+ 51 30 3.16	0.536
	γ² Sagittarii	2.9	17 59 11.445	3.8517	− 30 25 31.26	−0.289
*	ο Herculis	3.9	18 3 31.482	+ 2.3395	+ 28 44 53.68	+0.311
	δ Ursæ Minoris	4.4	18 5 31.119	−19.4810	+ 86 36 46.20	0.534
	22 Camelop (H.) . S. P.	4.7	18 7 26.523	+ 6.6167	+110 38 39.60	0.773
	μ¹ Sagittarii	4.1	18 7 36.234	3.5967	− 21 5 8.50	0.632
	η Serpentis	3.5	18 15 58.792	3.1025	− 2 55 30.70	0.722
*	λ Sagittarii	2.9	18 21 36.816	+ 3.7025	− 25 28 43.71	+1.665
*	χ Draconis	3.8	18 22 54.776	− 1.0808	+ 72 41 16.89	1.627
	1 Aquilæ	4.0	18 29 36.124	+ 3.2645	− 8 18 58.19	2.233
*	ζ Pavonis	4.2	18 33 5[illegible]	7.0[illegible]	− 71 30 55.69	2.563
	α Lyræ (*Vega*)	0.2	18 33 27.[illegible]85	2.0314	+ 38 41 15.61	3.189
	β Lyræ (*var.*)	3.6	18 46 16.637	+ 2.2143	+ 33 14 34.54	+4.004
	σ Sagittarii	2.3	18 48 52.719	+ 3.7212	− 26 25 28.63	4.168
	50 Draconis	5.6	18 49 41.695	1.0122	+ 75 18 44.88	4.289
	51 Cephei (H.) . S. P.	5.3	18 52 13.922	+2[illegible].7150	+ 92 47 25.87	4.368
	σ Octantis	5.6	18 54 37.027	+109.6610	− 89 15 31.78	+4.716

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January $0^d.0 - 0^d.624$, Washington.)

	Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ′ ″	″
*	γ Lyræ	3.3	18 55 5.457	+ 2.2444	+ 32 32 53.87	+ 4.785
	ζ Aquilæ	3.1	19 0 40.563	2.7569	+ 13 42 37.23	5.143
*	ι Lyræ	5.2	19 3 37.614	2.1413	+ 35 56 19.42	5.505
*	25 Camelopardalis . S. P.	5.3	19 9 25.224	12.9215	+ 97 23 25.22	6.014
	d Sagittarii	5.0	19 11 36.510	3.5118	− 19 8 10.05	6.145
	δ Draconis	3.1	19 12 31.939	+ 0.0277	+ 67 28 49.23	+ 6.327
*	θ Lyræ	4.4	19 12 47.503	+ 2.0791	+ 37 57 0.50	6.263
	τ Draconis	4.5	19 17 32.185	− 1.1214	+ 73 9 51.24	6.764
	Piazzi vii, 67 . S. P.	5.7	19 20 10.055	+ 6.2921	+111 19 26.83	6.910
	δ Aquilæ	3.5	19 20 18.304	+ 3.0251	+ 2 54 33.92	6.960
	λ Ursæ Minoris	6.5	19 25 52.970	−67.0115	+ 88 58 54.19	+ 7.348
*	β Cygni	3.1	19 26 34.059	+ 2.4195	+ 27 44 35.82	7.387
	κ Aquilæ	5.0	19 31 21.005	3.2285	− 7 15 22.88	7.783
*	β Sagittæ	4.5	19 36 25.384	2.6955	+ 17 14 14.15	8.161
	γ Aquilæ	2.8	19 41 21.775	2.8521	+ 10 21 44.03	8.574
*	δ Cygni	2.9	19 41 45.382	+ 1.8761	+ 44 52 45.22	+ 8.650
	α Aquilæ (*Altair*)	0.9	19 45 45.480	2.9274	+ 8 35 46.41	9.300
*	Groombridge 1374 S.P.	5.6	19 47 51.945	+ 7.2720	+105 48 25.89	9.127
	ε Draconis	3.9	19 48 31.188	− 0.1825	+ 70 0 20.22	9.172
*	ε Pavonis	4.1	19 48 40.370	+ 7.0071	− 73 10 52.32	9.156
	β Aquilæ	3.9	19 50 15.231	+ 2.9469	+ 6 8 57.88	+ 8.787
*	γ Sagittæ	3.6	19 54 10.597	2.6678	+ 19 12 44.93	9.620
*	c Sagittarii	4.5	19 56 19.534	3.6958	− 27 59 45.63	9.763
	τ Aquilæ	5.7	19 59 6.561	2.9329	+ 6 59 13.94	9.966
	3 Ursæ Majoris (H.) S.P.	5.5	20 2 34.141	6.0399	+111 13 22.77	10.218
*	θ Aquilæ	3.3	20 5 59.400	+ 3.0969	− 1 7 37.40	+10.486
*	31 Cygni	3.9	20 10 23.311	1.8894	+ 46 25 43.91	10.806
	α² Capricorni	3.7	20 12 20.405	+ 3.3315	− 12 51 50.59	10.946
	κ Cephei (*pr.*)	4.4	20 12 21.448	− 1.9357	+ 77 24 4.48	10.976
	α Pavonis	2.1	20 17 30.452	+ 4.7796	− 57 3 53.42	11.232
	γ Cygni	2.3	20 18 32.013	+ 2.1539	+ 39 55 36.76	+11.389
	π Capricorni	5.1	20 21 25.585	3.4387	− 18 32 57.74	11.586
	ε Delphini	4.0	20 28 17.561	+ 2.8671	+ 10 57 11.82	12.066
	Groombridge 3241	6.5	20 30 27.102	− 0.2250	+ 72 10 57.88	12.219
*	α Delphini	3.9	20 34 51.241	+ 2.7878	+ 15 32 55.08	12.544
*	β Pavonis	3.4	20 35 40.737	+ 5.4653	− 66 34 22.82	+ 12.575
	α Cygni	1.4	20 37 55.250	2.0445	+ 44 54 43.72	12.741
*	φ Capricorni	4.3	20 39 59.866	3.5595	− 25 38 27.58	12.727
*	ε Cygni	2.6	20 42 2.633	2.4280	+ 33 35 3.51	13.360
	μ Aquarii	4.8	20 47 5.931	+ 3.2391	− 9 22 11.54	13.315
	12 Year Catalogue, 1879	5.3	20 52 15.718	− 2.5729	+ 80 9 57.54	+13.662
	ν Cygni	4.1	20 53 19.974	+ 2.2344	+ 40 46 13.97	13.742
	σ³ Ursæ Majoris . S. P.	5.0	21 1 19.958	5.3447	+112 26 50.33	14.317
	61¹ Cygni	5.4	21 2 16.746	2.6835	+ 38 14 33.93	17.554
	ζ Cygni	3.3	21 8 33.094	2.5499	+ 29 48 15.50	14.631
*	τ Cygni	3.8	21 10 40.785	+ 2.3938	+ 37 36 20.66	+15.280
	α Cephei	2.6	21 16 7.311	1.4360	+ 62 8 56.71	15.184
	1 Pegasi	4.3	21 17 19.338	2.7724	+ 19 21 49.46	15.260
*	ζ Capricorni	3.8	21 20 47.262	3.4332	− 22 51 27.23	15.408
	1 Draconis (H.) [illegible]	4.4	21 22 24.338	+ 8.9402	+ 98 13 6.47	+15.514

* Apparent [illegible] are given after those of standard stars.

MEAN PLACES FOR 1897.0. (January $0^d.0 - 0^d.624$, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
		h m s	s	° ′ ″	″
δ Ursæ Majoris . S. P.	4.8	21 25 22.482	+ 5.3882	+109 43 1.75	+15.598
β Aquarii . . .	2.9	21 26 8.230	3.1612	− 6 1 27.71	15.684
β Cephei (pr.) . .	3.4	21 27 19.754	0.7915	+ 70 6 30.39	15.761
ξ Aquarii . . .	4.8	21 32 16.175	3.1973	− 8 18 58.20	15.993
* 74 Cygni	5.0	21 32 49.224	2.4000	+ 39 57 2.07	16.068
* ν¹ Octantis . . .	5.4	21 35 6.470	+ 9.7045	− 83 11 33.66	+16.099
* ζ Chamæleontis . S. P.	5.2	21 36 55.357	− 1.9843	− 99 31 17.05	16.276
ε Pegasi . . .	2.4	21 39 7.652	+ 2.9467	+ 9 24 9.84	16.375
11 Cephei . . .	4.8	21 40 24.932	0.2589	+ 70 50 13.84	16.544
* π² Cygni	4.5	21 42 59.275	2.2138	+ 48 49 58.60	16.557
μ Capricorni . . .	5.2	21 47 40.857	+ 3.2752	− 14 2 12.04	+16.800
* 16 Pegasi . . .	5.1	21 48 22.516	2.7282	+ 25 26 25.72	16.836
79 Draconis . . .	6.6	21 51 34.727	0.7256	+ 73 12 54.16	17.017
α Aquarii . . .	3.0	22 0 29.626	3.0824	− 0 49 12.99	17.373
α Gruis	1.9	22 1 44.520	3.8006	− 47 27 34.89	17.369
* π Pegasi . . .	4.3	22 5 24.758	+ 2.6607	+ 32 40 22.47	+17.595
32 Ursæ Majoris . S. P.	5.7	22 10 33.359	4.4123	+114 22 41.06	17.834
θ Aquarii . . .	4.4	22 11 23.933	3.1686	− 8 17 46.29	17.818
* σ Octantis . . .	6.2	22 11 56.195	12.9162	− 86 29 26.69	17.955
* γ Aquarii . . .	4.0	22 16 20.165	3.1005	− 1 54 23.01	18.054
π Aquarii . . .	4.6	22 20 1.030	+ 3.0645	+ 0 51 16.93	+18.169
* σ Aquarii . . .	4.9	22 25 11.761	3.1776	− 11 12 18.02	18.333
9 Draconis . . S. P.	5.0	22 26 21.027	5.2420	+103 45 23.74	18.418
* α Lacertæ . . .	3.9	22 27 2.813	2.4635	+ 49 45 10.13	18.426
η Aquarii . . .	4.2	22 30 3.816	3.0834	− 0 38 54.25	18.471
226 Cephei (B.) . .	5.7	22 30 28.068	+ 1.0748	+ 75 41 44.08	+18.533
* 10 Lacertæ . . .	5.0	22 34 38.345	2.6876	+ 38 30 50.98	18.680
* β Octantis . . .	4.4	22 35 31.693	6.4355	− 81 55 16.46	18.708
ζ Pegasi . . .	3.5	22 36 19.504	2.9911	+ 10 17 37.21	18.718
* λ Pegasi . . .	4.1	22 41 34.156	2.8858	+ 23 1 24.98	18.885
ι Cephei . . .	3.6	22 46 [illegible].60	+ 2.1235	+ 65 39 30.81	+18.884
λ Aquarii . . .	3.8	22 47 14.499	3.1523	− 8 7 39.53	19.085
* Groombr. 1706 . S. P.	6.3	22 51 43.042	4.9458	+101 40 40.87	19.198
α Pis. Aust. (*Fomalhaut*).	1.3	22 51 57.550	3.3232	− 30 10 5.32	19.004
* ο Andromedæ . .	3.8	22 57 10.850	2.7513	+ 41 46 20.04	19.275
α Ursæ Majoris . S. P.	2.0	22 57 22.350	+ 3.7414	+117 41 34.60	+19.375
α Pegasi (*Markab*) .	2.5	22 59 37.792	2.9834	+ 14 39 3.58	19.310
* φ Aquarii . . .	4.3	23 8 59.319	3.1084	− 6 36 15.15	19.565
ο Cephei . . .	5.1	23 14 23.786	2.4472	+ 67 32 52.93	19.674
* τ Pegasi . . .	4.6	23 15 32.292	2.9644	+ 23 10 34.98	19.662
θ Piscium . . .	4.3	23 22 44.570	+ 3.0413	+ 5 48 40.96	+19.732
λ Draconis . . S. P.	4.0	23 25 17.316	3.6131	+110 6 1.75	19.844
* λ Andromedæ . .	3.8	23 32 31.329	2.9043	+ 45 53 59.31	19.476
ι Piscium . . .	4.3	23 34 39.144	3.0844	+ 5 4 4.79	19.497
γ Cephei . . .	3.5	23 35 [illegible]	2.4210	+ 77 3 26.51	[illegible]
* ψ² Aquarii . . .	5.2	23 38 51.617	+ 3.1160	− 18 50 54.72	+19.962
* δ Sculptoris . . .	4.6	23 43 33.701	3.1313	− 28 41 58.91	19.858
* γ³ Octantis . . .	5.2	23 46 3.100	3.6649	− 82 35 28.63	19.995
Groombridge 4163 .	6.6	23 49 4[illegible].291	2.9720	+ 73 50 13.53	20.003
ω Piscium . .	4.2	23 54 1.122	3.0[illegible]	+ 6 17 34.94	19.931
* 33 Piscium	4.7	24 [illegible]	+ [illegible]	− 6 17 1.11	+20.147

* Apparent right ascensions of stars marked with an asterisk are given after those of standard stars.

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (*Polaris.*) Right Ascension.	α Ursæ Minoris. (*Polaris.*) Declination *North.*	Mean Solar Date.	51 Cephei (Hev.) Right Ascension.	51 Cephei (Hev.) Declination *North.*	Mean Solar Date.	δ Ursæ Minoris. Right Ascension.	δ Ursæ Minoris. Declination *North.*	Mean Solar Date.	λ Ursæ Minoris. Right Ascension.	λ Ursæ Minoris. Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Jan.	1 20	+88 45	Jan.	6 52	+87 12	Jan.	18 5	+86 36	Jan.	19 24	+88 58
	s	″		s	″		s	″		s	″
0.3	78.23	57.0	0.5	50.86	38.0	0.9	3.70	36.8	0.0	13.60	54.2
1.3	77.42	57.2	1.5	51.03	38.3	1.9	3.71	36.4	1.0	13.07	53.9
2.3	76.53	57.3	2.5	51.21	38.6	2.9	3.68	36.1	2.0	12.55	53.6
3.3	75.59	57.4	3.5	51.35	38.9	3.9	3.67	35.7	3.0	12.00	53.3
4.3	74.60	57.6	4.5	51.49	39.2	4.9	3.68	35.4	4.0	11.49	53.0
5.3	73.54	57.7	5.5	51.59	39.6	5.9	3.71	35.0	5.0	11.04	52.7
6.3	72.46	57.7	6.5	51.65	39.9	6.9	3.77	34.6	6.0	10.66	52.3
7.3	71.38	57.8	7.5	51.68	40.3	7.9	3.85	34.3	7.0	10.38	52.0
8.3	70.32	57.9	8.5	51.68	40.6	8.9	3.95	33.9	8.0	10.19	51.6
9.3	69.31	57.9	9.5	51.67	40.9	9.9	4.04	33.6	9.0	10.06	51.3
10.2	68.34	57.9	10.5	51.65	41.2	10.9	4.15	33.3	10.0	9.97	51.0
11.2	67.43	57.9	11.5	51.63	41.5	11.9	4.23	33.0	10.9	9.90	50.7
12.2	66.55	57.9	12.5	51.62	41.8	12.9	4.31	32.8	11.9	9.83	50.4
13.2	65.69	58.0	13.5	51.64	42.1	13.9	4.39	32.5	12.9	9.71	50.1
14.2	64.82	58.0	14.5	51.66	42.4	14.9	4.45	32.2	13.9	9.57	49.8
15.2	63.92	58.1	15.5	51.71	42.6	15.9	4.53	31.9	14.9	9.40	49.5
16.2	62.99	58.1	16.5	51.75	43.0	16.9	4.60	31.5	15.9	9.20	49.2
17.2	61.97	58.2	17.5	51.76	43.3	17.9	4.69	31.2	16.9	9.00	48.9
18.2	60.92	58.2	18.5	51.76	43.6	18.9	4.80	30.8	17.9	8.83	48.5
19.2	59.83	58.2	19.5	51.73	44.0	19.9	4.94	30.5	18.9	8.74	48.2
20.2	58.74	58.2	20.4	51.68	44.3	20.9	5.10	30.2	19.9	8.72	47.8
21.2	57.66	58.2	21.4	51.57	44.7	21.9	5.28	29.8	20.9	8.78	47.5
22.2	56.61	58.1	22.4	51.46	45.0	22.9	5.46	29.5	21.9	8.91	47.1
23.2	55.61	58.0	23.4	51.33	45.3	23.9	5.65	29.2	22.9	9.10	46.8
24.2	54.68	58.0	24.4	51.21	45.6	24.9	5.83	29.0	23.9	9.33	46.5
25.2	53.81	57.9	25.4	51.08	45.8	25.9	5.99	28.7	24.9	9.56	46.2
26.2	52.97	57.9	26.4	50.97	46.1	26.9	6.16	28.5	25.9	9.77	45.9
27.2	52.13	57.8	27.4	50.89	46.4	27.9	6.32	28.2	26.9	9.94	45.6
28.2	51.29	57.8	28.4	50.81	46.6	28.9	6.47	28.0	27.9	10.08	45.3
29.2	50.40	57.7	29.4	50.73	46.9	29.9	6.64	27.7	28.9	10.21	45.1
30.2	49.48	57.7	30.4	50.65	47.2	30.9	6.81	27.4	29.9	10.33	44.8
31.2	48.50	57.7	31.4	50.54	47.5	31.9	7.00	27.1	30.9	10.46	44.4
32.2	47.50	57.6	32.4	50.41	47.8	32.9	7.21	26.8	31.9	10.66	44.1

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (Polaris) Right Ascension.	Declination North.	Mean Solar Date.	51 Cephei (Hev.) Right Ascension.	Declination North.	Mean Solar Date.	δ Ursæ Minoris. Right Ascension.	Declination North.	Mean Solar Date.	λ Ursæ Minoris. Right Ascension.	Declination North.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Feb.	1 20	+88 45	Feb.	6 52	+87 12	Feb.	18 5	+86 36	Feb.	19 24	+88 58
	s	″		s	″		s	″		s	″
1.2	47.90	57.6	1.4	50.41	47.8	1.9	7.21	26.8	1.9	10.92	43.8
2.2	46.46	57.5	2.4	50.25	48.2	2.9	7.44	26.5	2.9	11.27	43.4
3.2	45.42	57.4	3.4	50.04	48.5	3.9	7.69	26.2	3.9	11.71	43.1
4.2	44.40	57.3	4.4	49.81	48.8	4.9	7.95	26.0	4.9	12.21	42.8
5.2	43.44	57.1	5.4	49.56	49.1	5.9	8.24	25.7	5.9	12.78	42.5
6.2	42.55	57.0	6.4	49.30	49.3	6.9	8.53	25.5	6.9	13.37	42.2
7.2	41.70	56.8	7.4	49.04	49.6	7.9	8.82	25.3	7.9	13.98	41.9
8.2	40.90	56.7	8.4	48.79	49.8	8.9	9.00	25.1	8.9	14.54	41.7
9.2	40.13	56.5	9.4	48.56	50.0	9.9	9.30	24.9	9.9	15.07	41.4
10.2	39.39	56.4	10.4	48.36	50.2	10.9	9.55	24.7	10.9	15.54	41.2
11.2	38.63	56.2	11.4	48.15	50.5	11.9	9.77	24.5	11.9	16.01	40.9
12.2	37.83	56.1	12.4	47.96	50.7	12.9	10.02	24.3	12.9	16.45	40.6
13.2	37.00	56.0	13.4	47.76	50.9	13.9	10.29	24.1	13.9	16.93	40.3
14.2	36.11	55.9	14.4	47.54	51.2	14.9	10.54	23.8	14.9	17.44	40.0
15.1	35.21	55.7	15.4	47.29	51.5	15.9	10.81	23.6	15.9	18.01	39.7
16.1	34.28	55.5	16.4	47.03	51.8	16.8	11.11	23.4	16.9	18.67	39.4
17.1	33.59	55.4	17.4	46.72	52.0	17.8	11.44	23.2	17.9	19.39	39.1
18.1	32.51	55.2	18.4	46.40	52.3	18.8	11.77	23.0	18.9	20.18	38.9
19.1	31.70	54.9	19.4	46.06	52.5	19.8	12.10	22.8	19.9	21.00	38.6
20.1	30.96	54.7	20.4	45.72	52.7	20.8	12.42	22.6	20.9	21.84	38.4
21.1	30.28	54.5	21.4	45.37	52.9	21.8	12.74	22.5	21.9	22.67	38.2
22.1	29.66	54.3	22.4	45.06	53.1	22.8	13.05	22.4	22.9	23.45	38.0
23.1	29.07	54.1	23.4	44.74	53.2	23.8	13.35	22.3	23.9	24.19	37.8
24.1	28.50	53.8	24.3	44.48	53.4	24.8	13.63	22.2	24.9	24.89	37.6
25.1	27.90	53.7	25.3	44.11	53.6	25.8	13.91	22.0	25.9	25.58	37.4
26.1	27.26	53.5	26.3	43.73	53.7	26.8	14.20	21.9	26.9	26.27	37.2
27.1	26.59	53.3	27.3	43.35	53.9	27.8	14.49	21.7	27.9	26.98	36.9
28.1	25.87	53.1	28.3	43.34	54.1	28.8	14.82	21.6	28.9	27.77	36.7
29.1	25.13	52.9	29.3	43.00	54.4	29.8	15.17	21.4	29.9	28.63	36.5

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (*Polaris.*) Right Ascension.	α Ursæ Minoris. (*Polaris.*) Declination *North.*	Mean Solar Date.	51 Cephei (Hev.) Right Ascension.	51 Cephei (Hev.) Declination *North.*	Mean Solar Date.	δ Ursæ Minoris. Right Ascension.	δ Ursæ Minoris. Declination *North.*	Mean Solar Date.	λ Ursæ Minoris. Right Ascension.	λ Ursæ Minoris. Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Mar.	1 20	+88 45	Mar	6 52	+87 12	Mar.	18 5	+86 36	Mar.	19 24	+88 58
	s	″		s	″		s	″		s	″
1.1	25.13	52.9	1.3	43.00	54.4	1.8	15.17	21.4	1.9	28.63	36.5
2.1	24.39	52.6	2.3	42.63	54.6	2.8	15.53	21.2	2.9	29.56	36.2
3.1	23.68	52.4	3.3	42.23	54.8	3.8	15.90	21.1	3.9	30.57	36.0
4.1	23.02	52.1	4.3	41.82	54.9	4.8	16.28	21.0	4.9	31.64	35.8
5.1	22.41	51.8	5.3	41.38	55.1	5.8	16.67	21.0	5.9	32.73	35.6
6.1	21.89	51.5	6.3	40.96	55.2	6.8	17.04	20.9	6.9	33.81	35.4
7.1	21.42	51.2	7.3	40.54	55.3	7.8	17.40	20.9	7.9	34.89	35.3
8.1	21.01	50.9	8.3	40.14	55.4	8.8	17.74	20.8	8.9	35.92	35.1
9.1	20.62	50.7	9.3	39.76	55.5	9.8	18.08	20.8	9.8	36.91	35.0
10.1	20.23	50.4	10.3	39.41	55.6	10.8	18.41	20.7	10.8	37.84	34.9
11.1	19.84	50.2	11.3	39.06	55.7	11.8	18.73	20.7	11.8	38.75	34.7
12.1	19.40	49.9	12.3	38.73	55.8	12.8	19.05	20.6	12.8	39.65	34.6
13.1	18.94	49.7	13.3	38.38	55.9	13.8	19.39	20.5	13.8	40.58	34.4
14.1	18.44	49.4	14.3	38.01	56.1	14.8	19.74	20.5	14.8	41.56	34.2
15.1	17.93	49.2	15.3	37.61	56.2	15.8	20.10	20.4	15.8	42.60	34.0
16.1	17.44	48.9	16.3	37.18	56.3	16.8	20.48	20.3	16.8	43.72	33.9
17.1	16.97	48.6	17.3	36.75	56.4	17.8	20.87	20.3	17.8	44.87	33.7
18.1	16.57	48.3	18.3	36.30	56.5	18.8	21.27	20.3	18.8	46.07	33.6
19.1	16.24	47.9	19.3	35.83	56.6	19.8	21.65	20.3	19.8	47.29	33.5
20.1	15.97	47.6	20.3	35.39	56.6	20.8	22.01	20.4	20.8	48.48	33.4
21.1	15.78	47.3	21.3	34.95	56.6	21.8	22.37	20.4	21.8	49.64	33.4
22.0	15.63	47.0	22.3	34.55	56.7	22.7	22.72	20.5	22.8	50.74	33.3
23.0	15.50	46.7	23.3	34.17	56.7	23.7	23.03	20.5	23.8	51.79	33.3
24.0	15.38	46.4	24.3	33.80	56.7	24.7	23.36	20.6	24.8	52.81	33.2
25.0	15.22	46.2	25.3	33.44	56.7	25.7	23.67	20.6	25.8	53.80	33.2
26.0	15.03	45.9	26.3	33.08	56.8	26.7	23.99	20.6	26.8	54.79	33.1
27.0	14.81	45.6	27.3	32.71	56.8	27.7	24.32	20.6	27.8	55.84	33.0
28.0	14.55	45.3	28.3	32.32	56.8	28.7	24.68	20.6	28.8	56.93	32.9
29.0	14.30	45.0	29.3	31.89	56.9	29.7	25.05	20.6	29.8	58.09	32.8
30.0	14.05	44.7	30.3	31.43	56.9	30.7	25.42	20.7	30.8	59.32	32.7
31.0	13.84	44.4	31.3	30.97	57.0	31.7	25.81	20.7	31.8	60.61	32.7
32.0	13.72	44.1	32.2	30.48	57.0	32.7	26.20	20.8	32.8	61.92	32.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (*Polaris*) Right Ascension.	α Ursæ Minoris (*Polaris*) Declination North.	Mean Solar Date.	51 Cephei (Hev.) Right Ascension.	51 Cephei (Hev.) Declination North.	Mean Solar Date.	δ Ursæ Minoris Right Ascension.	δ Ursæ Minoris Declination North.	Mean Solar Date.	λ Ursæ Minoris Right Ascension.	λ Ursæ Minoris Declination North.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Apr.	1 20	+88 45	Apr.	6 52	+87 12	Apr.	18 5	+86 36	Apr.	19 24	+88 58
	s	″		s	″		s	″		s	″
1.0	13.72	44.1	1.2	30.48	57.0	1.7	26.20	20.8	1.8	1.98	32.6
2.0	13.64	43.7	2.2	30.01	56.9	2.7	26.57	20.9	2.8	3.21	32.6
3.0	13.66	43.3	3.2	29.54	56.9	3.7	26.94	21.1	3.8	4.49	32.6
4.0	13.72	43.0	4.2	29.09	56.8	4.7	27.28	21.2	4.8	5.72	32.7
5.0	13.82	42.7	5.2	28.67	56.7	5.7	27.60	21.3	5.8	6.89	32.7
6.0	13.95	42.4	6.2	28.27	56.7	6.7	27.92	21.5	6.8	7.99	32.7
7.0	14.06	42.1	7.2	27.89	56.6	7.7	28.23	21.6	7.8	9.06	32.8
8.0	14.15	41.8	8.2	27.54	56.6	8.7	28.52	21.7	8.8	10.10	32.8
9.0	14.20	41.5	9.2	27.18	56.5	9.7	28.80	21.8	9.8	11.15	32.8
10.0	14.23	41.3	10.2	26.80	56.5	10.7	29.15	21.9	10.8	12.22	32.8
10.9	14.23	41.0	11.2	26.41	56.4	11.7	29.47	22.0	11.8	13.34	32.8
11.9	14.24	40.7	12.2	25.99	56.4	12.7	29.80	22.1	12.8	14.50	32.8
12.9	14.28	40.4	13.2	25.58	56.4	13.7	30.14	22.2	13.8	15.73	32.8
13.9	14.36	40.0	14.2	25.13	56.3	14.7	30.49	22.4	14.8	16.98	32.8
14.9	14.51	39.7	15.2	24.69	56.2	15.7	30.83	22.5	15.8	18.23	32.9
15.9	14.73	39.4	16.2	24.27	56.1	16.7	31.17	22.7	16.8	19.47	33.0
16.9	15.23	39.0	17.2	23.85	56.0	17.7	31.47	22.9	17.7	20.67	33.1
17.9	15.50	38.7	18.2	23.45	55.8	18.7	31.75	23.2	18.7	21.81	33.2
18.9	15.77	38.4	19.2	23.09	55.7	19.7	32.00	23.4	19.7	22.88	33.3
19.9	16.16	38.2	20.2	22.75	55.5	20.7	32.27	23.6	20.7	23.89	33.4
20.9	16.54	37.9	21.2	22.44	55.4	21.7	32.52	23.8	21.7	24.87	33.5
21.9	16.94	37.7	22.2	22.11	55.2	22.7	32.77	23.9	22.7	25.83	33.6
22.9	17.17	37.4	23.2	21.80	55.1	23.7	33.01	24.1	23.7	26.80	33.7
23.9	17.45	37.2	24.2	21.47	55.0	24.7	33.29	24.3	24.7	27.81	33.8
24.9	17.69	36.9	25.2	21.10	54.9	25.7	33.57	24.5	25.7	28.80	33.8
25.9	17.94	36.6	26.2	20.74	54.8	26.7	33.86	24.6	26.7	29.99	33.9
26.9	18.23	36.3	27.2	20.33	54.6	27.7	34.16	24.8	27.7	31.16	34.0
27.9	18.55	36.0	28.2	19.92	54.5	28.7	34.44	25.0	28.7	32.37	34.2
28.9	18.98	35.7	29.2	19.51	54.3	29.6	34.73	25.3	29.7	33.56	34.3
29.9	19.47	35.4	30.2	19.11	54.1	30.6	35.01	25.6	30.7	34.71	34.5
30.9	20.01	35.1	31.2	18.74	53.9	31.6	35.26	25.8	31.7	35.86	34.6
31.9	20.50	34.8									

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (*Polaris.*)		Mean Solar Date.	51 Cephei (Hev.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
May	1 20	+88 45	May	6 52	+87 12	May	18 5	+86 36	May	19 25	+88 58
	s	″		s	″		s	″		s	″
1.9	20.59	34.8	1.2	18.74	53.9	1.6	35.26	25.8	1.7	35.86	34.6
2.9	21.21	34.5	2.2	18.39	53.7	2.6	35.50	26.1	2.7	36.91	34.8
3.9	21.81	34.3	3.2	18.07	53.5	3.6	35.70	26.4	3.7	37.89	35.0
4.9	22.41	34.0	4.2	17.79	53.3	4.6	35.91	26.6	4.7	38.79	35.2
5.9	22.95	33.8	5.2	17.52	53.0	5.6	36.09	26.9	5.7	39.66	35.4
6.9	23.47	33.6	6.2	17.27	52.9	6.6	36.28	27.1	6.7	40.50	35.6
7.9	23.96	33.4	7.1	17.00	52.7	7.6	36.48	27.4	7.7	41.37	35.7
8.9	24.43	33.2	8.1	16.74	52.5	8.6	36.69	27.6	8.7	42.25	35.8
9.9	24.92	32.9	9.1	16.44	52.3	9.6	36.89	27.8	9.7	43.18	36.0
10.9	25.45	32.6	10.1	16.13	52.2	10.6	37.11	28.0	10.7	44.18	36.2
11.9	26.03	32.4	11.1	15.81	51.9	11.6	37.34	28.3	11.7	45.16	36.3
12.9	26.68	32.1	12.1	15.50	51.7	12.6	37.55	28.6	12.7	46.17	36.5
13.9	27.39	31.9	13.1	15.17	51.5	13.6	37.75	28.9	13.7	47.16	36.7
14.9	28.18	31.6	14.1	14.88	51.2	14.6	37.93	29.2	14.7	48.11	37.0
15.9	28.98	31.4	15.1	14.62	51.0	15.6	38.10	29.5	15.7	48.98	37.2
16.9	29.80	31.2	16.1	14.38	50.7	16.6	38.23	29.9	16.7	49.79	37.5
17.9	30.61	31.0	17.1	14.17	50.4	17.6	38.33	30.2	17.6	50.54	37.7
18.9	31.39	30.8	18.1	13.98	50.1	18.6	38.45	30.5	18.6	51.22	38.0
19.9	32.13	30.7	19.1	13.81	49.9	19.6	38.56	30.8	19.6	51.85	38.2
20.9	32.83	30.5	20.1	13.65	49.6	20.6	38.68	31.0	20.6	52.49	38.5
21.9	33.49	30.4	21.1	13.46	49.4	21.6	38.78	31.3	21.6	53.15	38.7
22.9	34.15	30.2	22.1	13.28	49.2	22.6	38.92	31.6	22.6	53.85	38.9
23.9	34.83	30.0	23.1	13.07	49.0	23.6	39.06	31.8	23.6	54.59	39.1
24.9	35.53	29.8	24.1	12.82	48.7	24.6	39.20	32.1	24.6	55.38	39.3
25.9	36.31	29.6	25.1	12.59	48.5	25.6	39.35	32.4	25.6	56.22	39.6
26.9	37.14	29.3	26.1	12.34	48.2	26.6	39.49	32.7	26.6	57.05	39.8
27.9	38.04	29.1	27.1	12.10	47.9	27.6	39.63	33.1	27.6	57.84	40.1
28.9	38.98	29.0	28.1	11.89	47.6	28.6	39.74	33.4	28.6	58.59	40.4
29.9	39.94	28.8	29.1	11.70	47.3	29.6	39.81	33.8	29.6	59.28	40.7
30.9	40.90	28.7	30.1	11.55	46.9	30.6	39.88	34.1	30.6	59.88	41.0
31.9	41.86	28.5	31.1	11.42	46.6	31.6	39.92	34.5	31.6	60.41	41.3
32.9	42.77	28.4	32.1	11.33	46.3	32.6	39.96	34.8	32.6	60.87	41.6

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (*Polaris*) Right Ascension.	α Ursæ Minoris (*Polaris*) Declination North.	Mean Solar Date.	51 Cephei (Hev.) Right Ascension.	51 Cephei (Hev.) Declination North.	Mean Solar Date.	δ Ursæ Minoris Right Ascension.	δ Ursæ Minoris Declination North.	Mean Solar Date.	λ Ursæ Minoris Right Ascension.	λ Ursæ Minoris Declination North.
June	h m 1 20	° ′ +88 45	June	h m 6 52	° ′ +87 12	June	h m 18 5	° ′ +86 36	June	h m 19 26	° ′ +88 58
	s	″		s	″		s	″		s	″
1.9	42.77	28.4	1.1	11.33	46.3	1.6	39.96	34.8	1.6	0.87	41.6
2.9	43.62	28.3	2.1	11.25	46.0	2.6	39.97	35.1	2.6	1.29	41.9
3.8	44.44	28.2	3.1	11.18	45.7	3.5	40.00	35.4	3.6	1.72	42.2
4.8	45.23	28.1	4.1	11.07	45.4	4.5	40.05	35.7	4.6	2.15	42.4
5.8	46.00	28.0	5.1	10.97	45.2	5.5	40.08	36.0	5.6	2.60	42.7
6.8	46.84	27.9	6.1	10.86	44.9	6.5	40.13	36.3	6.6	3.12	43.0
7.8	47.71	27.7	7.1	10.73	44.6	7.5	40.18	36.6	7.6	3.66	43.2
8.8	48.62	27.6	8.1	10.60	44.4	8.5	40.24	36.9	8.6	4.21	43.5
9.8	49.61	27.5	9.1	10.48	44.0	9.5	40.27	37.2	9.6	4.75	43.8
10.8	50.65	27.4	10.1	10.36	43.7	10.5	40.29	37.6	10.6	5.24	44.1
11.8	51.72	27.3	11.1	10.27	43.4	11.5	40.29	38.0	11.6	5.68	44.5
12.8	52.82	27.2	12.1	10.22	43.0	12.5	40.26	38.3	12.6	6.03	44.8
13.8	53.90	27.1	13.0	10.21	42.7	13.5	40.22	38.7	13.6	6.31	45.2
14.8	54.96	27.1	14.0	10.22	42.4	14.5	40.15	39.0	14.6	6.90	45.5
15.8	55.94	27.1	15.0	10.23	42.0	15.5	40.09	39.4	15.6	6.67	45.8
16.8	56.89	27.1	16.0	10.27	41.7	16.5	40.02	39.7	16.6	6.80	46.2
17.8	57.82	27.0	17.0	10.31	41.4	17.5	39.95	40.0	17.6	6.94	46.5
18.8	58.70	27.0	18.0	10.33	41.2	18.5	39.89	40.2	18.6	7.12	46.7
19.8	59.58	27.0	19.0	10.33	40.9	19.5	39.86	40.5	19.6	7.32	47.0
20.8	60.49	26.9	20.0	10.31	40.6	20.5	39.83	40.8	20.6	7.58	47.3
21.8	61.43	26.8	21.0	10.27	40.3	21.5	39.78	41.2	21.6	7.86	47.6
22.8	62.45	26.8	22.0	10.23	40.0	22.5	39.75	41.5	22.6	8.14	47.9
23.8	63.51	26.[illegible]	23.0	10.20	39.7	23.5	39.71	41.8	23.6	8.44	48.3
24.8	64.61	26.6	24.0	10.18	39.3	24.5	39.66	42.2	24.6	8.69	48.6
25.8	65.74	26.6	25.0	10.19	39.0	25.5	39.57	42.5	25.6	8.87	49.0
26.8	66.87	26.6	26.0	10.23	38.6	26.5	39.46	42.9	26.6	8.96	49.4
27.8	68.01	26.6	27.0	10.31	38.2	27.5	39.34	43.3	27.6	8.97	49.7
28.8	[illegible]	26.[illegible]	28.0	10.40	37.9	28.5	39.20	43.6	28.6	8.91	50.1
29.8	70.12	26.[illegible]	29.0	10.55	37.6	29.5	39.06	43.9	29.5	8.81	50.4
30.8	71.09	26.[illegible]	30.0	10.66	37.2	30.5	38.90	44.2	30.5	8.67	50.8
31.8	72.04	26.[illegible]	31.0	10.79	36.9	31.5	38.76	44.5	31.5	8.55	51.2

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (*Polaris.*)		Mean Solar Date.	51 Cephei (Hev.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
July	1 21	+88 45	July	6 52	+87 12	July	18 5	+86 36	July	19 25	+88 58
	s	″		s	″		s	″		s	″
1.8	12.04	26.8	1.0	10.79	36.9	1.5	38.76	44.5	1.5	68.55	51.1
2.8	12.96	26.8	2.0	10.90	36.7	2.5	38.62	44.8	2.5	68.46	51.4
3.8	13.88	26.9	3.0	11.01	36.4	3.5	38.49	45.0	3.5	68.38	51.7
4.8	14.84	26.9	4.0	11.08	36.1	4.5	38.37	45.3	4.5	68.37	52.0
5.8	15.84	26.9	4.9	11.16	35.8	5.5	38.25	45.6	5.5	68.34	52.3
6.8	16.90	26.9	5.9	11.24	35.5	6.5	38.13	46.0	6.5	68.33	52.6
7.8	18.01	27.0	6.9	11.34	35.2	7.5	37.98	46.3	7.5	68.29	53.0
8.8	19.15	27.0	7.9	11.44	34.8	8.5	37.81	46.6	8.5	68.19	53.4
9.8	20.32	27.1	8.9	11.59	34.5	9.5	37.63	47.0	9.5	68.01	53.7
10.7	21.49	27.2	9.9	11.74	34.1	10.5	37.42	47.3	10.5	67.76	54.1
11.7	22.61	27.3	10.9	11.96	33.7	11.5	37.20	47.6	11.5	67.43	54.5
12.7	23.69	27.4	11.9	12.19	33.4	12.4	36.96	47.9	12.5	67.05	54.8
13.7	24.71	27.5	12.9	12.41	33.1	13.4	36.73	48.2	13.5	66.63	55.2
14.7	25.68	27.6	13.9	12.66	32.8	14.4	36.50	48.5	14.5	66.19	55.5
15.7	26.60	27.8	14.9	12.90	32.5	15.4	36.27	48.7	15.5	65.79	55.8
16.7	27.51	27.8	15.9	13.10	32.2	16.4	36.05	49.0	16.5	65.42	56.1
17.7	28.43	27.9	16.9	13.30	32.0	17.4	35.86	49.2	17.5	65.09	56.4
18.7	29.38	28.0	17.9	13.48	31.7	18.4	35.67	49.5	18.5	64.81	56.7
19.7	30.37	28.1	18.9	13.64	31.4	19.4	35.46	49.8	19.5	64.54	57.0
20.7	31.42	28.2	19.9	13.81	31.1	20.4	35.27	50.1	20.5	64.28	57.4
21.7	32.51	28.3	20.9	13.99	30.8	21.4	35.05	50.4	21.5	63.96	57.7
22.7	33.63	28.4	21.9	14.20	30.4	22.4	34.82	50.7	22.5	63.61	58.1
23.7	34.75	28.5	22.9	14.43	30.1	23.4	34.55	51.0	23.5	63.18	58.4
24.7	35.86	28.7	23.9	14.68	29.8	24.4	34.29	51.3	24.5	62.68	58.8
25.7	36.94	28.9	24.9	14.97	29.4	25.4	33.99	51.6	25.5	62.09	59.2
26.7	37.97	29.1	25.9	15.29	29.1	26.4	33.69	51.9	26.5	61.45	59.5
27.7	38.91	29.3	26.9	15.61	28.8	27.4	33.39	52.1	27.5	60.78	59.8
28.7	39.81	29.4	27.9	15.94	28.6	28.4	33.09	52.3	28.5	60.09	60.1
29.7	40.69	29.6	28.9	16.25	28.3	29.4	32.80	52.5	29.5	59.44	60.4
30.7	41.55	29.8	29.9	16.53	28.0	30.4	32.53	52.7	30.5	58.81	60.7
31.7	42.41	30.0	30.9	16.82	27.8	31.4	32.25	53.0	31.5	58.23	61.0
32.7	43.32	30.1	31.9	17.08	27.6	32.4	31.98	53.2	32.5	57.68	61.3

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris). Right Ascension.	Declination North.	Mean Solar Date.	51 Cephei (Hev.). Right Ascension.	Declination North.	Mean Solar Date.	δ Ursæ Minoris. Right Ascension.	Declination North.	Mean Solar Date.	λ Ursæ Minoris. Right Ascension.	Declination North.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Aug	1 21	+88 45	Aug	6 52	+87 12	Aug	18 5	+86 36	Aug	19 25	+88 59
	s	″		s	″		s	″		s	″
1.7	43.12	30.1	1.9	17.35	27.3	1.4	31.98	53.2	1.5	57.68	1.3
2.7	44.29	30.3	2.9	17.60	27.0	2.4	31.71	53.4	2.4	57.12	1.6
3.7	45.28	30.4	3.9	17.90	26.7	3.4	31.43	53.7	3.4	56.56	1.9
4.7	46.33	30.6	4.9	18.30	26.4	4.4	31.13	54.0	4.4	55.95	2.2
5.7	47.38	30.8	5.9	18.54	26.1	5.4	30.81	54.2	5.4	55.27	2.6
6.7	48.45	31.0	6.9	18.91	25.8	6.4	30.48	54.5	6.4	54.52	2.9
7.7	49.49	31.3	7.9	19.32	25.5	7.4	30.11	54.8	7.4	53.69	3.3
8.7	50.48	31.5	8.9	19.73	25.2	8.4	29.75	55.0	8.4	52.80	3.6
9.7	51.40	31.8	9.9	20.14	25.0	9.4	29.37	55.2	9.4	51.88	3.9
10.7	52.26	32.0	10.9	20.57	24.7	10.4	29.01	55.4	10.4	50.92	4.2
11.7	53.07	32.3	11.9	20.96	24.5	11.4	28.64	55.5	11.4	49.98	4.5
12.7	53.86	32.6	12.9	21.33	24.3	12.4	28.29	55.7	12.4	49.08	4.8
13.7	54.63	32.8	13.9	21.69	24.1	13.4	27.97	55.9	13.4	48.24	5.0
14.7	55.42	33.0	14.9	22.11	23.9	14.4	27.65	56.0	14.4	47.43	5.3
15.6	56.23	33.2	15.9	22.37	23.6	15.4	27.33	56.2	15.4	46.66	5.5
16.6	57.00	33.4	16.9	22.70	23.4	16.3	27.01	56.4	16.4	45.98	5.8
17.6	58.01	33.6	17.9	23.16	23.1	17.3	26.68	56.6	17.4	45.11	6.1
18.6	59.15	33.9	18.9	23.43	22.9	18.3	26.33	56.8	18.4	44.30	6.4
19.6	59.98	34.1	19.9	23.93	22.6	19.3	25.97	57.0	19.4	43.40	6.7
20.6	60.83	34.4	20.9	24.27	22.3	20.3	25.58	57.2	20.4	42.45	7.0
21.6	61.74	34.7	21.9	24.78	22.1	21.3	25.19	57.4	21.4	41.48	7.3
22.6	62.49	34.9	22.9	25.20	21.9	22.3	24.79	57.6	22.4	40.32	7.6
23.6	63.37	35.1	23.9	25.60	21.7	23.3	24.37	57.8	23.4	39.18	7.9
24.6	64.11	35.5	24.9	26.14	21.5	24.3	23.95	57.9	24.4	38.04	8.1
25.6	64.76	[illegible]	25.9	26.48	21.3	25.3	23.55	58.0	25.4	36.90	8.3
26.6	65.42	[illegible]	26.9	27.21	21.2	26.3	23.15	58.1	26.4	35.81	8.6
27.6	[illegible]	[illegible]	27.9	27.42	21.0	27.3	22.79	58.2	27.4	34.75	8.8
28.6	66.74	[illegible]	28.9	27.94	20.8	28.3	22.42	58.3	28.4	33.74	9.0
29.6	[illegible]	[illegible]	29.9	28.23	[illegible]	29.3	22.07	58.5	29.4	32.74	9.2
30.6	[illegible]	[illegible]	30.9	[illegible]	20.4	30.3	21.69	58.6	30.4	31.75	9.4
31.6	[illegible]	[illegible]	31.9	[illegible]	20.2	31.3	21.31	58.8	31.4	30.73	9.7
32.6	69.31	[illegible]	32.9	28.55	[illegible]	32.3	20.91	58.9	32.4	29.66	10.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (*Polaris.*)		Mean Solar Date.	51 Cephei (Hev.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*		Right Ascension.	Declination *North.*
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Sept.	1 22	+88 45	Sept.	6 52	+87 12	Sept.	18 5	+86 36	Sept.	19 24	+88 59
	s	″		s	″		s	″		s	″
1.6	9.81	37.8	1.9	29.55	20.0	1.3	20.91	58.9	1.4	89.66	10.0
2.6	10.62	38.1	2.8	30.03	19.8	2.3	20.48	59.1	2.4	88.52	10.2
3.6	11.43	38.5	3.8	30.55	19.5	3.3	20.05	59.2	3.4	87.30	10.5
4.6	12.19	38.8	4.8	31.09	19.3	4.3	19.61	59.3	4.4	86.03	10.8
5.6	12.89	39.2	5.8	31.62	19.2	5.3	19.15	59.4	5.4	84.69	11.0
6.6	13.51	39.6	6.8	32.17	19.0	6.3	18.70	59.5	6.4	83.35	11.2
7.6	14.08	39.9	7.8	32.70	18.9	7.3	18.26	59.6	7.4	82.00	11.4
8.6	14.59	40.3	8.8	33.19	18.8	8.3	17.82	59.6	8.4	80.70	11.6
9.6	15.09	40.6	9.8	33.67	18.7	9.3	17.41	59.7	9.4	79.45	11.7
10.6	15.59	40.9	10.8	34.13	18.6	10.3	17.02	59.7	10.3	78.25	11.9
11.6	16.11	41.2	11.8	34.55	18.5	11.3	16.63	59.8	11.3	77.09	12.1
12.6	16.66	41.5	12.8	35.01	18.3	12.3	16.24	59.8	12.3	75.97	12.2
13.6	17.27	41.8	13.8	35.46	18.2	13.3	15.84	59.9	13.3	74.84	12.4
14.6	17.90	42.1	14.8	35.92	18.0	14.3	15.44	60.0	14.3	73.69	12.6
15.6	18.56	42.5	15.8	36.42	17.8	15.3	15.03	60.1	15.3	72.48	12.8
16.6	19.20	42.8	16.8	36.94	17.7	16.3	14.59	60.2	16.3	71.22	13.1
17.6	19.81	43.2	17.8	37.48	17.5	17.3	14.14	60.2	17.3	69.87	13.3
18.6	20.38	43.6	18.8	38.04	17.4	18.3	13.67	60.3	18.3	68.48	13.5
19.6	20.87	44.0	19.8	38.61	17.3	19.3	13.22	60.3	19.3	67.03	13.7
20.6	21.31	44.4	20.8	39.17	17.2	20.3	12.76	60.3	20.3	65.58	13.8
21.5	21.67	44.7	21.8	39.71	17.2	21.3	12.31	60.3	21.3	64.13	13.9
22.5	22.00	45.1	22.8	40.23	17.1	22.2	11.88	60.3	22.3	62.73	14.0
23.5	22.33	45.4	23.8	40.72	17.1	23.2	11.46	60.3	23.3	61.37	14.2
24.5	22.66	45.8	24.8	41.20	17.0	24.2	11.04	60.2	24.3	60.05	14.3
25.5	23.02	46.1	25.8	41.69	16.9	25.2	10.64	60.2	25.3	58.79	14.4
26.5	23.42	46.5	26.8	42.17	16.8	26.2	10.24	60.2	26.3	57.52	14.5
27.5	23.85	46.8	27.8	42.66	16.7	27.2	9.84	60.2	27.3	56.25	14.6
28.5	24.31	47.2	28.8	43.18	16.6	28.2	9.41	60.3	28.3	54.94	14.8
29.5	24.79	47.5	29.8	43.72	16.5	29.2	8.96	60.3	29.3	53.57	14.9
30.5	25.25	47.9	30.8	44.29	16.4	30.2	8.51	60.3	30.3	52.13	15.1
31.5	25.67	48.3	31.7	44.89	16.4	31.2	8.03	60.3	31.3	50.65	15.2

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris (Polaris) Right Ascension.	α Ursæ Minoris (Polaris) Declination North.	Mean Solar Date.	51 Cephei (Hev.) Right Ascension.	51 Cephei (Hev.) Declination North.	Mean Solar Date.	δ Ursæ Minoris Right Ascension.	δ Ursæ Minoris Declination North.	Mean Solar Date.	λ Ursæ Minoris Right Ascension.	λ Ursæ Minoris Declination North.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Oct.	1 22	+88 45	Oct.	6 52	+87 12	Oct.	18 4	+86 36	Oct.	19 24	+88 59
	s	″		s	″		s	″		s	″
1.5	25.[illegible]	48.3	1.7	44.[illegible]	16.4	1.2	68.03	60.3	1.3	50.65	15.2
2.5	26.[illegible]	48.7	2.7	45.47	16.3	2.2	67.57	60.3	2.3	49.10	15.3
3.5	26.[illegible]	49.[illegible]	3.7	46.[illegible]	16.3	3.2	67.09	60.2	3.3	47.54	15.4
4.5	26.[illegible]	49.6	4.7	[illegible]	16.3	4.2	66.65	60.[illegible]	4.3	45.98	15.5
5.5	26.[illegible]	50.0	5.7	47.21	16.3	5.2	66.19	60.1	5.3	44.44	15.6
6.5	26.[illegible]	50.4	6.7	47.75	16.3	6.2	65.75	60.0	6.3	42.97	15.6
7.5	26.[illegible]	[illegible]	7.7	48.24	16.3	7.2	65.34	59.9	7.3	41.55	15.6
8.5	27.[illegible]	51.1	8.7	48.74	16.3	8.2	64.96	59.8	8.3	40.19	15.7
9.5	27.25	51.4	9.7	49.21	16.3	9.2	64.57	59.8	9.3	38.88	15.7
10.5	27.45	51.8	10.7	49.[illegible]	16.3	10.2	64.18	59.7	10.3	37.60	15.8
11.5	27.[illegible]	52.1	11.7	50.[illegible]	16.2	11.2	63.79	59.6	11.3	36.30	15.9
12.5	27.95	52.5	12.7	50.70	16.2	12.2	63.38	59.6	12.3	34.95	15.9
13.5	28.[illegible]	52.9	13.7	51.21	16.2	[illegible]	62.96	59.6	13.3	33.56	16.0
14.5	28.44	53.3	14.7	51.[illegible]	16.1	14.2	62.53	59.5	14.3	32.11	16.1
15.5	28.[illegible]	[illegible]	[illegible]	52.[illegible]	16.1	15.2	62.09	59.4	15.3	30.61	16.2
16.5	28.[illegible]	54.1	[illegible]	52.[illegible]	16.2	16.2	61.65	59.3	16.2	29.06	16.2
17.5	28.[illegible]	54.5	17.7	53.52	16.2	17.2	61.21	59.2	17.2	27.48	16.2
18.5	28.[illegible]	[illegible]	18.7	54.[illegible]	16.3	18.2	60.78	59.0	18.2	25.93	16.2
19.5	28.[illegible]	55.3	19.7	54.62	16.3	19.2	60.36	58.9	19.2	24.41	16.2
20.5	28.[illegible]	[illegible]	20.7	55.13	16.4	20.2	59.98	58.7	20.2	22.96	16.2
21.5	28.54	[illegible]	21.7	55.62	16.5	21.2	59.59	58.6	21.2	21.55	16.2
22.5	28.[illegible]	[illegible]	22.7	56.11	16.6	22.2	59.21	58.4	22.2	20.18	16.2
23.5	28.44	[illegible]	[illegible]	[illegible]	16.6	23.2	58.85	58.3	23.2	18.86	16.1
24.5	28.45	57.1	24.7	57.[illegible]	16.6	24.2	58.49	58.2	24.2	17.54	16.1
25.5	28.[illegible]	[illegible]	[illegible]	[illegible]	16.7	25.2	58.12	58.0	25.2	16.21	16.1
26.5	28.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.2	57.73	57.9	26.2	14.84	16.2
27.5	28.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27.2	57.32	57.8	27.2	13.41	16.2
28.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28.1	56.92	57.7	28.2	11.92	16.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29.1	56.49	57.6	29.2	10.38	16.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.1	56.08	57.4	30.2	8.82	16.1
31.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.1	55.67	57.2	31.2	7.27	16.1
32.4	[illegible]	[illegible]	[illegible]	[illegible]	17.2	32.1	55.28	57.0	32.2	5.73	16.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (*Polaris.*)		Mean Solar Date.	51 Cephei (Hev.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.		Right Ascension.	Declination *North*.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
Nov.	1 22	+88 46	Nov.	6 53	+87 12	Nov.	18 4	+86 36	Nov.	19 23	+88 59
	s	″		s	″		s	″		s	″
1.4	28.03	0.3	1.7	1.44	17.2	1.1	55.28	57.0	1.2	65.73	16.0
2.4	27.74	0.6	2.7	1.94	17.4	2.1	54.90	56.8	2.2	64.27	15.9
3.4	27.42	1.0	3.7	2.42	17.5	3.1	54.54	56.5	3.2	62.87	15.8
4.4	27.12	1.3	4.7	2.88	17.6	4.1	54.22	56.3	4.2	61.54	15.7
5.4	26.84	1.7	5.7	3.30	17.8	5.1	53.90	56.1	5.2	60.25	15.6
6.4	26.58	2.0	6.6	3.73	17.9	6.1	53.59	55.9	6.2	59.02	15.5
7.4	26.38	2.3	7.6	4.16	18.0	7.1	53.27	55.7	7.2	57.80	15.4
8.4	26.20	2.6	8.6	4.62	18.1	8.1	52.96	55.5	8.2	56.58	15.4
9.4	26.01	3.0	9.6	5.08	18.2	9.1	52.63	55.4	9.2	55.29	15.3
10.4	25.83	3.3	10.6	5.57	18.3	10.1	52.28	55.2	10.2	53.98	15.3
11.4	25.60	3.7	11.6	6.06	18.4	11.1	51.95	55.0	11.2	52.61	15.2
12.4	25.32	4.1	12.6	6.58	18.6	12.1	51.59	54.8	12.2	51.21	15.1
13.4	24.96	4.4	13.6	7.08	18.7	13.1	51.25	54.5	13.2	49.78	15.0
14.4	24.54	4.8	14.6	7.57	18.9	14.1	50.91	54.3	14.2	48.36	14.9
15.4	24.06	5.2	15.6	8.04	19.1	15.1	50.58	54.0	15.2	46.98	14.7
16.4	23.54	5.5	16.6	8.48	19.3	16.1	50.28	53.7	16.2	45.65	14.5
17.4	23.01	5.8	17.6	8.89	19.5	17.1	50.01	53.4	17.2	44.40	14.4
18.4	22.49	6.1	18.6	9.28	19.7	18.1	49.73	53.2	18.2	43.21	14.2
19.4	22.01	6.4	19.6	9.67	19.9	19.1	49.46	52.9	19.2	42.06	14.0
20.4	21.56	6.7	20.6	10.06	20.1	20.1	49.22	52.6	20.1	40.95	13.9
21.4	21.15	7.0	21.6	10.44	20.2	21.1	48.95	52.4	21.1	39.85	13.7
22.4	20.77	7.3	22.6	10.86	20.4	22.1	48.68	52.2	22.1	38.71	13.6
23.4	20.39	7.6	23.6	11.28	20.6	23.1	48.43	52.0	23.1	37.53	13.5
24.4	19.99	8.0	24.6	11.73	20.7	24.1	48.14	51.7	24.1	36.31	13.3
25.4	19.55	8.3	25.6	12.19	20.9	25.1	47.84	51.5	25.1	35.05	13.2
26.4	19.05	8.6	26.6	12.65	21.1	26.1	47.55	51.2	26.1	33.75	13.0
27.4	18.48	9.0	27.6	13.10	21.3	27.1	47.26	50.9	27.1	32.46	12.9
28.4	17.83	9.3	28.6	13.52	21.6	28.1	47.00	50.6	28.1	31.19	12.7
29.4	17.13	9.6	29.6	13.92	21.8	29.1	46.76	50.3	29.1	29.99	12.4
30.4	16.42	9.9	30.6	14.28	22.1	30.1	46.53	50.0	30.1	28.85	12.2
31.4	15.69	10.2	31.6	14.61	22.4	31.1	46.33	49.6	31.1	27.80	12.0

CIRCUMPOLAR STARS.

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Ursæ Minoris. (Polaris.)		Mean Solar Date.	51 Cephei (Hev.)		Mean Solar Date.	δ Ursæ Minoris.		Mean Solar Date.	λ Ursæ Minoris.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
Dec.	h m 1 21	° ′ +88 46	Dec.	h m 6 53	° ′ +87 12	Dec.	h m 18 4	° ′ +86 36	Dec.	h m 19 23	° ′ +88 59
	s	″		s	″		s	″		s	″
1.4	75.69	10.2	1.6	14.61	22.4	1.1	46.33	49.6	1.1	27.80	12.0
2.4	74.96	10.4	2.6	14.91	22.6	2.0	46.16	49.3	2.1	26.82	11.7
3.3	74.29	10.7	3.6	15.20	22.9	3.0	45.98	49.0	3.1	25.90	11.5
4.3	73.65	10.9	4.6	15.49	23.1	4.0	45.81	48.7	4.1	25.00	11.3
5.3	73.05	11.2	5.6	15.78	23.3	5.0	45.64	48.5	5.1	24.14	11.1
6.3	72.48	11.4	6.6	16.10	23.5	6.0	45.47	48.2	6.1	23.23	10.9
7.3	71.88	11.6	7.6	16.42	23.7	7.0	45.29	47.9	7.1	22.30	10.7
8.3	71.28	11.9	8.6	16.77	23.9	8.0	45.10	47.6	8.1	21.34	10.5
9.3	70.63	12.2	9.6	17.11	24.2	9.0	44.91	47.3	9.1	20.33	10.3
10.3	69.91	12.4	10.6	17.47	24.5	10.0	44.71	47.0	10.1	19.30	10.1
11.3	69.13	12.7	11.6	17.81	24.8	11.0	44.53	46.7	11.1	18.28	9.8
12.3	68.29	13.0	12.5	18.18	25.1	12.0	44.37	46.3	12.1	17.30	9.5
13.3	67.41	13.2	13.5	18.50	25.4	13.0	44.22	46.0	13.1	16.37	9.3
14.3	66.51	13.4	14.5	18.84	25.7	14.0	44.10	45.6	14.1	15.52	9.0
15.3	65.61	13.6	15.5	18.87	26.0	15.0	44.00	45.2	15.1	14.75	8.7
16.3	64.76	13.8	16.5	19.06	26.3	16.0	43.90	44.9	16.1	14.03	8.4
17.3	63.94	14.0	17.5	19.26	26.6	17.0	43.81	44.6	17.1	13.37	8.1
18.3	63.16	14.2	18.5	19.49	26.8	18.0	43.75	44.3	18.1	12.72	7.9
19.3	62.44	14.3	19.5	19.68	27.1	19.0	43.66	44.0	19.1	12.08	7.6
20.3	61.70	14.5	20.5	19.91	27.3	20.0	43.56	43.7	20.1	11.40	7.4
21.3	60.90	14.7	21.5	20.15	27.6	21.0	43.45	43.4	21.1	10.70	7.1
22.3	60.15	14.9	22.5	20.42	27.8	21.9	43.34	43.1	22.1	9.94	6.9
23.3	59.44	15.1	23.5	20.68	28.1	22.9	43.22	42.8	23.1	9.16	6.6
24.3	58.57	15.3	24.5	20.92	28.4	23.9	43.11	42.4	24.1	8.38	6.4
25.3	57.63	15.5	25.5	21.16	28.8	24.9	43.08	42.1	25.1	7.60	6.1
26.3	56.67	15.7	26.5	21.37	29.1	25.9	42.94	41.7	26.0	6.90	5.7
27.3	55.65	15.9	27.5	21.55	29.4	26.9	42.91	41.3	27.0	6.27	5.4
28.3	54.63	16.0	28.5	21.69	29.8	27.9	42.88	41.0	28.0	5.73	5.1
29.3	53.60	16.1	29.5	21.77	30.1	28.9	42.84	40.6	29.0	5.28	4.7
30.3	52.64	16.2	30.5	21.83	30.4	29.9	42.80	40.3	30.0	4.89	4.4
31.3	51.72	16.2	31.5	21.92	30.7	30.9	42.82	39.9	31.0	4.56	4.1
32.3	50.83	16.3	32.5	21.99	31.0	31.9	42.85	39.6	32.0	4.25	3.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Andromedæ.		γ Pegasi. (*Algenib.*)		β Hydri.		12 Ceti.	
	Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *South.*	Right Ascension.	Declination *South.*
	h m 0 3	° ′ +28 31	h m 0 7	° ′ +14 36	h m 0 20	° ′ −77 49	h m 0 24	° ′ − 4 31
	s	″	s	″	s	″	s	″
(Dec. 30.2)	4.04 −.14	31.5 −0.8	56.33 −.12	47.9 −0.8	22.20 − .93	78.7 +0.8	47.61 −.11	32.5 −0.6
Jan. 9.2	3.91 .13	30.6 1.0	56.22 .11	47.1 0.8	21.29 .88	77.6 1.4	47.50 .10	33.1 0.5
19.2	3.79 .12	29.5 1.2	56.12 .10	46.2 0.9	20.43 .81	75.9 2.0	47.40 .10	33.6 0.4
29.2	3.68 .10	28.1 1.4	56.03 .08	45.3 1.0	19.66 .72	73.7 2.5	47.31 .09	33.9 0.3
Feb. 8.1	3.59 .08	26.6 1.5	55.95 .07	44.3 1.0	18.99 .61	71.0 2.9	47.23 .07	34.2 −0.1
18.1	3.52 −.05	25.0 −1.6	55.90 −.04	43.3 −0.9	18.45 − .48	67.9 +3.3	47.17 −.05	34.2 +0.1
28.1	3.49 −.02	23.5 1.5	55.87 −.01	42.4 0.8	18.03 .34	64.5 3.5	47.13 −.03	34.1 0.3
Mar. 10.0	3.49 +.02	22.0 1.4	55.87 +.02	41.6 0.7	17.76 .19	60.8 3.7	47.12 .00	33.7 0.5
20.0	3.53 .07	20.6 1.3	55.91 .06	41.1 0.5	17.65 − .04	57.0 3.8	47.14 +.04	33.1 0.7
30.0	3.62 .11	19.4 1.0	55.99 .10	40.7 −0.2	17.69 + .12	53.1 3.9	47.19 .08	32.3 0.9
Apr. 9.0	3.75 +.16	18.6 −0.7	56.11 +.14	40.6 +0.1	17.88 + .27	49.3 +3.8	47.29 +.12	31.3 +1.2
18.9	3.93 .20	18.1 −0.4	56.27 .18	40.9 0.4	18.24 .43	45.5 3.7	47.43 .16	30.0 1.4
28.9	4.16 .24	17.9 0.0	56.47 .22	41.4 0.7	18.74 .57	41.9 3.5	47.61 .20	28.4 1.6
May 8.9	4.42 .28	18.1 +0.4	56.71 .25	42.3 1.0	19.38 .71	38.5 3.2	47.83 .23	26.7 1.8
18.8	4.72 .31	18.7 0.8	56.98 .28	43.4 1.3	20.15 .83	35.5 2.8	48.08 .26	24.9 1.9
28.8	5.04 +.33	19.7 +1.2	57.28 +.30	44.9 +1.6	21.03 + .95	32.9 +2.4	48.35 +.29	22.8 +2.0
June 7.8	5.38 .35	21.1 1.5	57.60 .32	46.6 1.8	22.00 1.01	30.7 2.0	48.65 .31	20.8 2.1
17.8	5.74 .35	22.8 1.8	57.92 .33	48.5 2.0	23.04 1.06	28.9 1.4	48.97 .32	18.6 2.1
27.8	6.09 .35	24.7 2.1	58.25 .33	50.5 2.1	24.12 1.08	27.8 0.9	49.29 .32	16.5 2.0
July 7.7	6.43 .34	26.9 2.3	58.58 .32	52.7 2.2	25.21 1.08	27.2 +0.3	49.61 .31	14.5 2.0
17.7	6.76 +.32	29.3 +2.4	58.89 +.30	54.9 +2.2	26.28 +1.05	27.1 −0.3	49.92 +.30	12.6 +1.8
27.7	7.06 .29	31.8 2.5	59.18 .27	57.1 2.2	27.30 .98	27.7 0.8	50.21 .28	10.9 1.6
Aug. 6.6	7.33 .25	34.3 2.6	59.44 .24	59.2 2.1	28.25 .89	28.8 1.4	50.47 .25	9.4 1.4
16.6	7.57 .22	36.9 2.5	59.66 .21	61.3 2.0	29.08 .76	30.4 1.8	50.71 .22	8.2 1.1
26.6	7.77 .18	39.3 2.4	59.86 .17	63.2 1.8	29.77 .62	32.5 2.2	50.92 .19	7.2 0.8
Sept. 5.5	7.92 +.14	41.8 +2.3	60.01 +.14	64.9 +1.6	30.31 + .45	34.9 −2.6	51.08 +.15	6.5 +0.6
15.5	8.04 .10	44.0 2.2	60.13 .10	66.4 1.4	30.67 .27	37.7 2.9	51.21 .11	6.1 0.3
25.5	8.11 .06	46.1 2.0	60.20 .06	67.7 1.2	30.85 + .08	40.7 3.0	51.31 .08	5.9 +0.1
Oct. 5.5	8.15 +.02	48.0 1.8	60.25 +.03	68.8 1.0	30.83 − .11	43.7 3.0	51.36 .04	6.0 −0.1
15.4	8.16 −.01	49.7 1.5	60.26 .00	69.7 0.8	30.63 .29	46.7 2.9	51.39 +.01	6.3 0.3
25.4	8.13 −.04	51.1 +1.3	60.24 −.03	70.3 +0.5	30.25 − .46	49.5 −2.7	51.38 −.01	6.7 −0.5
Nov 4.4	8.07 .07	52.2 1.0	60.20 .05	70.8 0.3	29.70 .62	52.1 2.4	51.35 .04	7.3 0.6
14.4	7.99 .09	53.0 0.7	60.13 .07	70.9 +0.1	29.01 .74	54.3 1.9	51.30 .06	8.0 0.7
24.4	7.89 .11	53.5 +0.4	60.05 .09	70.9 −0.1	28.22 .84	56.0 1.4	51.23 .08	8.8 0.7
Dec. 4.3	7.78 .12	53.8 0.0	59.95 .10	70.7 0.3	27.33 .91	57.1 0.9	51.14 .09	9.5 0.8
14.3	7.66 −.13	53.6 −0.3	59.85 −.11	70.3 −0.5	26.40 − .94	57.7 −0.2	51.05 −.10	10.3 −0.7
24.2	7.52 .13	53.2 0.6	59.74 .11	69.7 0.7	25.44 .95	57.6 +0.4	50.94 .11	11.0 0.7
34.2	7.39 −.14	52.5 −0.9	59.63 −.12	69.0 −0.8	24.50 − .95	56.0 +0.9	50.83 −.11	11.7 −0.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Date	q Cassiopeiæ Right Ascension	q Cassiopeiæ Declination North	β Ceti Right Ascension	β Ceti Declination South	22 Cassiopeiæ Right Ascension	22 Cassiopeiæ Declination North	ε Piscium Right Ascension	ε Piscium Declination North
	h m 0 34	° ′ +55 58	h m 0 38	° ′ −18 32	h m 0 38	° ′ +74 25	h m 0 57	° ′ + 7 20
	s	″	s	″	s	″	s	″
Dec 30.1	[illegible]	42.3	26.05	[illegible]	49.79	55.3 +0.3	56.62 −.10	15.4 −0.5
Jan 9.0	[illegible]	[illegible]	25.94 .11	[illegible]	49.09	55.3 0.3	56.52 .11	14.8 0.7
19.0	[illegible]	[illegible]	25.82 .11	[illegible]	48.41 .67	54.7 0.0	56.41 .11	14.1 0.7
29.0	[illegible]	[illegible]	25.71	[illegible]	47.76 .60	53.5 1.3	56.30 .11	13.4 0.6
Feb 8.0	[illegible]	[illegible]	25.61	[illegible]	47.17 .55	51.8 1.9	56.19 .10	12.8 0.6
18.0	[illegible]	[illegible]	25.53	[illegible]	46.66 −.43	49.7 −2.4	56.10 .08	12.2 0.5
28.0	[illegible]	[illegible]	25.47	[illegible]	46.26 .33	47.1 2.7	56.03 .06	11.8 0.4
Mar 10.0	[illegible]	[illegible]	25.44	[illegible]	46.00 .20	44.4 2.9	55.99 .03	11.5 0.2
20.0	[illegible]	[illegible]	25.44	[illegible]	45.87 −.05	41.4 2.9	55.98 +.01	11.3 0.0
30.0	[illegible]	[illegible]	25.49	[illegible]	45.90 +.11	38.5 2.9	56.01 .05	11.4 +0.2
Apr 9.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35.6 2.7	56.08 +.09	11.7 +0.4
19.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] .41	33.0 2.3	56.19 .13	12.3 0.7
29.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.7 2.1	56.34 .17	13.1 1.0
May 9.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28.8 1.7	56.53 .20	14.2 1.0
19.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	27.4 1.1	56.77 .25	15.5 1.4
28.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.4	57.03 +.28	17.0 +1.6
June 8.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57.32 .30	18.7 1.8
18.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.2 +0.4	57.63 .32	20.6 1.9
28.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.9 1.0	57.95 .32	22.6 2.0
July 8.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28.1 1.5	58.28 .32	24.6 2.0
17.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	29.9 +2.0	58.59 +.31	26.6 +2.0
27.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32.0 2.4	58.90 .30	28.5 1.9
Aug 6.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	34.6 2.8	59.18 .27	30.3 1.8
16.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37.6 3.1	59.44 .24	32.0 1.6
26.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] .34	40.9 3.4	59.67 .22	33.5 1.4
Sept 5.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.3 +3.5	59.87 +.18	34.8 +1.2
15.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47.9 3.6	60.03 .15	35.9 1.0
25.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51.6 3.7	60.16 .11	36.8 0.7
Oct 5.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	55.3 3.7	60.25 .08	37.4 0.5
15.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58.9 3.6	60.31 .03	37.8 0.3
25.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.4 +3.4	60.34 + .00	38.0 +0.1
Nov 4.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.6 3.1	60.34 − .02	38.0 0.1
14.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	68.6 2.7	60.31 .05	37.8 0.2
24.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	71.1 2.3	60.25 .08	37.6 0.4
Dec 4.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] .33	73.2 1.8	60.21 .09	37.1 0.5
14.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	74.8 +1.3	60.13 −.09	36.6 −0.6
24.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	75.8 0.7	60.04 .10	36.0 0.6
34.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	76.1 +0.1	59.93 −.11	35.4 −0.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*β Andromedæ.* Right Ascension.	*β Andromedæ.* Declination *North.*	*θ¹ Ceti.* Right Ascension.	*θ¹ Ceti.* Declination *South.*	*38 Cassiopeiæ.* Right Ascension.	*38 Cassiopeiæ.* Declination *North.*	*η Piscium.* Right Ascension.	*η Piscium.* Declination *North.*
	h m 1 3	° ′ +35 4	h m 1 18	° ′ − 8 42	h m 1 23	° ′ +69 44	h m 1 25	° ′ +14 48
	s	″	s	″	s	″	s	″
(Dec. 30.3)	58.55 −.14	44.6 −0.3	53.50 −.11	51.4 −0.8	34.40 −.46	28.8 +0.8	59.21 −.10	63.8 −0.5
Jan. 9.3	58.41 .15	44.2 0.6	53.39 .11	52.0 0.6	33.92 .49	29.3 +0.2	59.10 .11	63.3 0.6
19.2	58.25 .15	43.5 0.9	53.27 .12	52.6 0.4	33.42 .50	29.3 −0.4	58.98 .12	62.6 0.7
29.2	58.10 .15	42.5 1.1	53.15 .12	52.9 −0.2	32.91 .49	28.6 1.0	58.86 .12	61.9 0.7
Feb. 8.2	57.95 .14	41.2 1.4	53.04 .11	53.1 0.0	32.42 .46	27.4 1.5	58.74 .11	61.2 0.8
18.1	57.82 −.12	39.7 −1.5	52.93 −.10	53.0 +0.2	31.98 −.41	25.7 −1.9	58.63 −.10	60.4 −0.7
28.1	57.72 .09	38.2 1.6	52.84 .08	52.7 0.4	31.60 .33	23.6 2.3	58.53 .08	59.7 0.7
Mar. 10.1	57.65 −.05	36.5 1.6	52.78 .05	52.2 0.6	31.31 .24	21.1 2.6	58.46 .05	59.0 0.6
20.1	57.63 .00	34.9 1.5	52.75 −.02	51.4 0.9	31.12 .14	18.4 2.7	58.43 −.02	58.5 0.5
30.0	57.64 +.04	33.4 1.4	52.75 +.02	50.4 1.1	31.04 −.02	15.7 2.8	58.43 +.02	58.1 0.3
Apr. 9.0	57.71 +.10	32.1 −1.2	52.79 +.06	49.2 +1.3	31.09 +.10	12.9 −2.7	58.47 +.06	57.9 −0.1
19.0	57.84 .15	31.0 0.9	52.87 .11	47.7 1.6	31.25 .22	10.3 2.5	58.55 .11	58.0 +0.2
29.0	58.02 .20	30.3 0.6	53.00 .15	46.0 1.8	31.53 .34	7.9 2.3	58.69 .16	58.3 0.5
May 8.9	58.24 .25	29.8 −0.3	53.17 .19	44.2 1.9	31.93 .45	5.8 1.9	58.86 .20	58.9 0.7
18.9	58.51 .29	29.7 +0.1	53.37 .23	42.1 2.1	32.43 .54	4.0 1.5	59.08 .23	59.7 1.0
28.9	58.82 +.32	30.0 +0.5	53.62 +.26	40.0 +2.2	33.01 +.62	2.7 −1.0	59.33 +.27	60.8 +1.2
June 7.8	59.16 .35	30.7 0.9	53.89 .28	37.8 2.2	33.67 .68	1.9 −0.5	59.62 .30	62.2 1.5
17.8	59.52 .37	31.8 1.2	54.19 .30	35.6 2.2	34.37 .72	1.6 0.0	59.93 .32	63.7 1.6
27.8	59.89 .37	33.2 1.5	54.50 .31	33.5 2.1	35.11 .75	1.9 +0.5	60.25 .33	65.4 1.8
July 7.8	60.27 .37	34.8 1.8	54.82 .32	31.5 2.0	35.87 .75	2.6 1.0	60.58 .33	67.3 1.9
17.7	60.64 +.36	36.8 +2.0	55.13 +.31	29.6 +1.8	36.62 +.74	3.8 +1.4	60.90 +.32	69.2 +1.9
27.7	60.99 .34	38.9 2.2	55.44 .30	27.9 1.6	37.34 .71	5.5 1.9	61.22 .31	71.1 1.9
Aug. 6.7	61.32 .32	41.2 2.4	55.73 .28	26.4 1.3	38.04 .67	7.6 2.3	61.53 .29	73.0 1.9
16.6	61.62 .29	43.6 2.4	56.00 .26	25.3 1.0	38.68 .61	10.0 2.6	61.81 .27	74.9 1.8
26.6	61.89 .25	46.0 2.4	56.25 .23	24.5 0.7	39.26 .55	12.8 2.9	62.06 .24	76.6 1.6
Sept. 5.6	62.13 +.21	48.5 +2.4	56.46 +.20	23.9 +0.4	39.78 +.48	15.9 +3.2	62.29 +.21	78.1 +1.5
15.6	62.32 .18	50.9 2.4	56.64 .16	23.7 +0.1	40.21 .40	19.1 3.3	62.48 .18	79.5 1.3
25.5	62.48 .14	53.2 2.3	56.79 .13	23.8 −0.2	40.57 .31	22.5 3.4	62.64 .14	80.7 1.1
Oct. 5.5	62.60 .10	55.4 2.1	56.90 .09	24.2 0.5	40.84 .22	26.0 3.5	62.77 .11	81.8 0.9
15.5	62.67 .06	57.4 1.9	56.97 .06	24.8 0.7	41.01 .13	29.4 3.4	62.86 .08	82.6 0.7
25.5	62.72 +.03	59.2 +1.7	57.02 +.03	25.6 −0.9	41.10 +.04	32.8 +3.3	62.92 +.05	83.2 +0.5
Nov. 4.4	62.73 −.01	60.8 1.5	57.03 .00	26.6 1.0	41.09 −.05	36.1 3.1	62.96 +.02	83.6 0.3
14.4	62.70 .04	62.2 1.2	57.02 −.02	27.6 1.1	40.99 .14	39.1 2.9	62.96 −.01	83.9 +0.2
24.4	62.65 .07	63.2 0.9	56.98 .05	28.7 1.1	40.81 .23	41.8 2.5	62.94 .03	83.9 0.0
Dec. 4.3	62.57 .09	64.0 0.6	56.92 .07	29.7 1.0	40.54 .31	44.1 2.1	62.89 .06	83.8 −0.2
14.3	62.46 −.12	64.4 +0.3	56.85 −.09	30.7 −1.0	40.19 .38	46.0 +1.6	62.83 −.08	83.6 −0.3
24.3	62.33 .13	64.6 0.0	56.75 .10	31.7 0.9	39.79 .43	47.4 1.1	62.74 .09	83.2 0.4
34.3	62.19 −.15	64.4 −0.4	56.64 −.11	32.5 −0.7	39.33 −.48	48.2 +0.6	62.64 −.11	82.7 −0.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Eridani. (Achernar.) Right Ascension.	Declination South.	α Piscium. Right Ascension.	Declination North.	β Arietis. Right Ascension.	Declination North.	50 Cassiopeiæ. Right Ascension.	Declination North.
	h m 1 33	° ′ −57 44	h m 1 39	° ′ +8 38	h m 1 48	° ′ +20 18	h m 1 54	° ′ +71 55
	s	″	s	″	s	″	s	″
Dec 30.3	54.09 −.30	106.9 −0.7	58.30 −.10	29.2 −0.6	58.02 .10	28.6 −0.3	59.52 −.40	47.3 +1.0
Jan 9.3	53.76 .33	107.4 0.1	58.20 .11	28.7 0.6	57.91 .11	28.2 0.5	59.00 .54	48.3 0.7
19.2	53.43 .33	107.2 +0.3	58.09 .11	28.0 0.6	57.79 .13	27.7 0.6	58.44 .57	48.6 +0.1
29.2	53.10 .31	106.4 1.0	57.97 .12	27.4 0.6	57.65 .13	27.0 0.7	57.86 .58	48.4 −0.3
Feb 8.2	52.79 .30	105.2 1.5	57.84 .12	26.8 0.6	57.52 .13	26.2 0.8	57.28 .56	47.6 1.0
18.1	52.50 −.27	103.4 +2.0	57.73 −.11	26.3 −0.5	57.39 −.12	25.4 −0.9	56.74 −.52	46.3 1.6
28.1	52.24 .24	101.2 2.4	57.63 .10	25.8 0.4	57.27 .10	24.5 0.9	56.25 .45	44.4 2.0
Mar 10.1	52.03 .19	98.6 2.8	57.55 .08	25.5 0.3	57.18 .08	23.7 0.8	55.83 .35	42.2 2.3
20.1	51.87 .13	95.6 3.1	57.50 −.03	25.3 0.1	57.12 .04	22.9 0.7	55.55 .26	39.8 2.6
30.0	51.77 −.07	92.4 3.3	57.49 +.01	25.2 +0.1	57.10 .00	22.2 0.6	55.37 −.10	37.2 2.7
Apr 9.0	51.73 .00	88.9 +3.5	57.51 +.03	25.4 +0.3	57.12 +.04	21.7 0.4	55.31 +.02	34.3 2.8
19.0	51.76 +.07	85.4 3.6	57.58 .09	25.8 0.6	57.19 .09	21.4 0.2	55.40 .15	31.5 2.7
29.0	51.86 .14	81.7 3.6	57.70 .14	26.5 0.8	57.30 .16	21.3 +0.1	55.62 .29	28.9 2.5
May 8.9	52.03 .20	78.1 3.5	57.85 .18	27.4 1.0	57.46 .19	21.5 0.3	55.97 .41	26.6 2.0
18.9	52.27 .27	74.7 3.4	58.05 .22	28.5 1.2	57.66 .22	21.9 0.6	56.45 .53	24.5 1.9
28.9	52.57 +.33	71.3 +3.2	58.29 +.25	29.9 +1.4	57.91 +.27	22.7 +0.9	57.03 +.65	22.8 −1.5
June 7.8	52.93 .38	68.3 2.9	58.55 .28	31.4 1.6	58.19 .30	23.7 1.1	57.70 .71	21.6 1.0
17.8	53.34 .44	65.6 2.5	58.86 .30	33.2 1.7	58.49 .33	24.9 1.3	58.45 .77	20.9 0.5
27.8	53.78 .46	63.3 2.1	59.17 .31	34.9 1.8	58.82 .33	26.4 1.5	59.24 .80	20.6 0.0
July 7.8	54.24 .47	61.4 1.6	59.49 .32	36.8 1.9	59.15 .34	28.0 1.7	60.07 .83	20.8 +0.5
17.7	54.72 +.48	60.0 +1.1	59.81 +.32	38.6 +1.9	59.49 +.34	29.7 +1.8	60.90 +.84	21.6 +1.0
27.7	55.19 .47	59.2 +0.5	60.13 .31	40.5 1.8	59.82 .33	31.5 1.8	61.74 .82	22.8 1.6
Aug 6.7	55.65 .45	59.0 0.1	60.43 .29	42.2 1.7	60.14 .31	33.4 1.8	62.55 .78	24.4 2.0
16.6	56.09 .41	59.3 0.6	60.71 .27	43.9 1.6	60.44 .29	35.2 1.8	63.32 .72	26.5 2.2
26.6	56.48 .37	60.2 1.0	60.97 .23	45.4 1.4	60.72 .26	37.0 1.7	64.02 .68	28.9 2.6
Sept 5.6	56.83 +.32	61.6 1.7	61.20 +.20	46.6 +1.2	60.97 +.23	38.7 +1.6	64.67 +.61	31.7 +2.9
15.6	57.12 .25	63.5 2.1	61.40 .16	47.7 1.0	61.19 .20	40.3 1.5	65.24 .53	34.7 3.1
25.5	57.33 .19	65.8 2.5	61.57 .13	48.6 0.8	61.38 .17	41.7 1.3	65.73 .44	37.9 3.3
Oct 5.5	57.49 .12	68.4 2.7	61.71 .10	49.2 0.5	61.53 .14	43.0 1.2	66.13 .35	41.2 3.4
15.5	57.57 +.04	71.3 3.0	61.81 .06	49.6 0.3	61.65 .11	44.2 1.0	66.43 .25	44.6 3.4
25.5	57.58 −.03	74.3 −3.0	61.89 +.05	49.8 +0.1	61.74 +.07	45.0 +0.8	66.62 +.14	48.1 +3.4
Nov 4.4	57.53 .09	77.1 2.9	61.93 +.02	49.9 0.1	61.80 .04	45.7 0.6	66.71 +.04	51.4 3.3
14.4	57.41 .15	79.9 2.7	61.95 .00	49.7 0.3	61.83 +.01	46.2 0.5	66.70 −.07	54.6 3.1
24.4	57.23 .20	82.5 2.4	61.94 −.03	49.5 0.3	61.83 .02	46.6 0.3	66.58 .17	57.5 2.8
Dec 4.3	57.01 .24	84.7 2.0	61.91 .05	49.2 0.4	61.80 .04	46.8 +0.1	66.35 .27	60.2 2.4
14.3	56.74 −.28	[illegible]	61.85 −.07	48.8 −0.5	61.75 .06	46.8 −0.1	66.04 −.36	62.4 +2.0
24.3	56.44 .31	[illegible]	61.77 .09	48.2 0.6	61.67 .09	46.7 0.2	65.63 .46	64.2 1.5
34.3	56.13 −.32	[illegible]	[illegible]	[illegible]	61.57	46.4 −0.4	65.15 −.52	65.5 +1.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Arietis. Right Ascension.	α Arietis. Declination North.	ξ¹ Ceti. Right Ascension.	ξ¹ Ceti. Declination North.	ι Cassiopeiæ. Right Ascension.	ι Cassiopeiæ. Declination North.	ξ² Ceti. Right Ascension.	ξ² Ceti. Declination North.
	h m 2 1	° ′ +22 58	h m 2 7	° ′ + 8 21	h m 2 20	° ′ +66 56	h m 2 22	° ′ + 7 59
	s	″	s	″	s	″	s	″
(Dec. 30.3)	23.13 −.10	44.6 −0.2	33.64 −.09	57.1 −0.6	36.11 −.33	44.9 +1.5	42.24 −.08	62.4 −0.6
Jan. 9.3	23.02 .12	44.3 0.4	33.55 .10	56.5 0.6	35.75 .38	46.0 0.8	42.16 .10	61.8 0.6
19.2	22.90 .13	43.8 0.5	33.44 .12	55.9 0.6	35.34 .42	46.6 +0.3	42.05 .12	61.2 0.6
29.2	22.76 .14	43.2 0.7	33.31 .13	55.3 0.6	34.91 .44	46.6 −0.3	41.92 .13	60.6 0.5
Feb. 8.2	22.62 .14	42.4 0.8	33.18 .13	54.8 0.5	34.46 .44	46.0 0.8	41.79 .14	60.1 0.5
18.2	22.48 −.13	41.6 −0.9	33.05 −.12	54.3 −0.5	34.03 −.42	45.0 −1.3	41.65 −.13	59.6 −0.4
28.2	22.36 .11	40.7 0.9	32.93 .11	53.9 0.4	33.62 .37	43.5 1.7	41.53 .12	59.2 0.3
Mar. 10.1	22.25 .09	39.7 0.9	32.83 .09	53.5 0.3	33.28 .31	41.6 2.1	41.42 .10	58.9 0.2
20.1	22.18 .05	38.9 0.8	32.76 .06	53.3 −0.1	33.00 .23	39.3 2.3	41.33 .07	58.8 −0.1
30.1	22.14 −.01	38.0 0.7	32.72 −.02	53.3 +0.1	32.81 .14	36.9 2.5	41.28 −.04	58.8 +0.1
Apr. 9.1	22.15 +.03	37.4 0.6	32.72 +.02	53.5 +0.3	32.73 −.03	34.3 −2.6	41.26 +.01	58.9 +0.3
19.0	22.20 .08	36.9 0.4	32.76 .06	53.9 0.5	32.75 +.08	31.7 2.5	41.29 .05	59.3 0.5
29.0	22.31 .13	36.6 −0.1	32.85 .11	54.5 0.7	32.88 .19	29.2 2.4	41.37 .10	59.9 0.7
May 9.0	22.46 .18	36.6 +0.1	32.98 .16	55.3 0.9	33.12 .29	26.9 2.2	41.48 .14	60.7 0.9
18.9	22.66 .22	36.9 0.4	33.16 .20	56.4 1.2	33.46 .39	24.9 1.9	41.65 .18	61.8 1.1
28.9	22.90 +.26	37.4 +0.7	33.37 +.23	57.7 +1.4	33.90 +.48	23.2 −1.5	41.85 +.22	63.0 +1.3
June 7.9	23.17 .29	38.2 0.9	33.62 .27	59.1 1.5	34.41 .55	21.8 1.1	42.09 .26	64.4 1.5
17.9	23.48 .31	39.3 1.2	33.90 .29	60.7 1.7	34.99 .61	21.0 0.7	42.36 .28	66.0 1.6
27.8	23.80 .33	40.6 1.4	34.21 .31	62.4 1.7	35.63 .65	20.5 −0.2	42.66 .30	67.7 1.7
July 7.8	24.14 .34	42.0 1.6	34.52 .32	64.2 1.8	36.29 .68	20.5 +0.3	42.97 .31	69.4 1.7
17.8	24.48 +.34	43.7 +1.7	34.84 +.32	66.0 +1.8	36.98 +.69	21.0 +0.7	43.28 +.32	71.2 +1.7
27.7	24.82 .33	45.4 1.8	35.16 .31	67.7 1.7	37.67 .68	22.0 1.1	43.60 .32	72.9 1.7
Aug. 6.7	25.15 .32	47.2 1.8	35.47 .30	69.4 1.6	38.35 .67	23.3 1.6	43.91 .31	74.5 1.6
16.7	25.46 .30	49.0 1.8	35.76 .28	71.0 1.5	39.01 .64	25.1 1.9	44.21 .29	76.0 1.4
26.7	25.75 .28	50.8 1.8	36.04 .26	72.4 1.3	39.63 .60	27.2 2.3	44.49 .27	77.4 1.2
Sept 5.6	26.02 +.25	52.5 +1.7	36.29 +.24	73.6 +1.1	40.20 +.55	29.6 +2.5	44.75 +.25	78.5 +1.1
15.6	26.25 .22	54.1 1.6	36.51 .21	74.6 0.9	40.72 .49	32.3 2.8	44.99 .22	79.5 0.8
25.6	26.45 .19	55.6 1.4	36.70 .18	75.4 0.7	41.18 .42	35.2 3.0	45.19 .19	80.2 0.6
Oct 5.6	26.62 .16	57.0 1.3	36.87 .15	75.9 0.4	41.57 .36	38.2 3.1	45.37 .16	80.7 0.4
15.5	26.76 .13	58.2 1.2	37.00 .12	76.3 0.2	41.89 .28	41.3 3.2	45.52 .13	81.0 +0.2
25.5	26.87 +.09	59.3 +1.0	37.10 +.09	76.4 +0.1	42.13 +.20	44.5 +3.2	45.64 +.10	81.0 0.0
Nov 4.5	26.94 .06	60.1 0.8	37.18 .06	76.4 0.1	42.29 .12	47.6 3.1	45.72 .07	80.9 −0.2
14.4	26.98 +.01	60.8 0.6	37.22 +.01	76.2 0.3	42.37 +.03	50.7 3.0	45.75 .04	80.7 0.3
24.4	27.00 .00	61.4 0.4	37.24 .00	75.9 0.4	42.36 .04	53.5 2.7	45.81 +.02	80.3 0.4
Dec 4.4	26.98 .02	61.7 0.2	37.22 .01	75.4 0.5	42.20 .14	56.1 2.4	45.81 .01	79.9 0.5
14.4	26.93 −.06	61.9 +0.1	37.18 .06	75.0 [illegible]	42.[illegible] −.22	58.3 +2.1	45.78 .04	79.3 −0.5
24.3	26.86 .09	61.8 0.1	37.12 .08	74.4 0.6	41.83 .30	60.2 1.6	45.73 .07	78.8 0.6
34.3	26.76 .11	61.6 0.3	37.03 .11	73.5 −0.8	41.51 .35	61.5 +1.1	45.65 .09	78.2 −0.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Ceti. Right Ascension.	γ Ceti. Declination North.	α Ceti. Right Ascension.	α Ceti. Declination North.	48 Cephei (H.) Right Ascension.	48 Cephei (H.) Declination North.	ζ Arietis. Right Ascension.	ζ Arietis. Declination North.
	h m 2 37	° ′ + 2 48	h m 2 56	° ′ + 3 41	h m 3 7	° ′ +77 21	h m 3 8	° ′ +20 39
	s	″	s	″	s	″	s	″
Dec 30.3	59.17 −.07	12.9 −0.7	55.17 −.08	15.4 −0.7	18.94 .11	45.2 +0.1	60.40 .06	57.5 0.1
Jan 9.3	59.08 .10	12.2 0.7	55.09 .09	14.6 0.7	18.33 .66	47.0 1.6	60.33 .09	57.4 0.2
19.2	58.97 .12	11.6 0.6	54.98 .11	14.0 0.6	17.61 .72	48.4 1.2	60.23 .11	57.2 0.3
29.2	58.84 .13	11.0 0.5	54.86 .13	13.4 0.5	16.80 .81	49.2 +0.3	60.10 .14	56.8 0.4
Feb 8.2	58.71 .14	10.5 0.4	54.72 .14	12.9 0.4	15.95 .88	49.5 0.2	59.95 .15	56.3 0.5
18.2	58.57 −.14	10.1 −0.3	54.58 −.14	12.5 −0.3	15.07 .88	49.1 −0.7	59.80 .15	55.8 −0.5
28.2	58.43 .13	9.9 −0.0	54.44 .14	12.2 0.2	14.23 .82	48.1 1.0	59.64 .15	55.2 0.6
Mar 10.1	58.32 .12	9.8 0.0	54.30 .12	12.1 −0.1	13.45 .73	46.7 1.7	59.50 .13	54.6 0.6
20.1	58.22 .10	9.9 +0.0	54.19 .10	12.2 +0.1	12.72 .64	44.7 2.1	59.38 .11	54.0 0.6
30.1	58.15 .05	10.2 0.4	54.11 .06	12.3 0.3	12.24 .46	42.4 2.4	59.28 .08	53.4 0.5
Apr 9.1	58.12 −.02	10.6 +0.6	54.07 −.03	12.7 +0.5	11.86 .30	39.8 2.6	59.22 .04	52.9 −0.3
19.0	58.13 +.03	11.2 0.8	54.06 +.02	13.3 0.7	11.66 .11	37.1 2.8	59.21 +.02	52.5 0.3
29.0	58.18 .06	12.1 1.0	54.10 .06	14.2 0.9	11.65 +.09	34.2 2.8	59.24 .06	52.3 0.0
May 9.0	58.28 .10	13.2 1.2	54.18 .11	15.0 1.1	11.83 .27	31.5 2.7	59.32 .11	52.2 +0.1
19.0	58.43 .17	14.4 1.4	54.32 .15	16.2 1.3	12.20 .45	28.8 2.5	59.45 .15	52.4 0.3
28.9	58.61 +.22	15.9 +1.5	54.48 +.19	17.6 +1.4	12.74 +.60	26.4 −2.3	59.63 +.20	52.7 +0.5
June 7.9	58.84 .26	17.5 1.7	54.69 .23	19.1 1.6	13.45 .77	24.3 2.0	59.85 .26	53.3 0.7
17.9	59.09 .27	19.2 1.7	54.93 .26	20.7 1.7	14.29 .90	22.5 1.6	60.11 .27	54.0 0.9
27.8	59.37 .30	21.0 1.8	55.20 .28	22.4 1.7	15.26 1.00	21.2 1.1	60.39 .30	55.0 1.0
July 7.8	59.67 .30	22.8 1.8	55.49 .29	24.2 1.7	16.31 1.09	20.8 0.7	60.70 .30	56.1 1.0
17.8	59.98 +.31	24.6 +1.7	55.81 +.31	25.9 +1.7	17.44 +1.13	19.8 −0.1	61.02 +.33	57.4 +1.3
27.7	60.30 .31	26.3 1.6	56.12 .31	27.5 1.6	18.61 1.18	19.8 +0.3	61.36 .33	58.7 1.3
Aug 6.7	60.60 .30	27.9 1.5	56.42 .30	29.0 1.5	19.79 1.18	20.3 0.7	61.69 .33	60.0 1.4
16.7	60.90 .29	29.3 1.3	56.72 .30	30.4 1.3	20.97 1.17	21.3 1.0	62.00 .30	61.4 1.4
26.7	61.19 .26	30.5 1.1	57.00 .28	31.6 1.1	22.13 1.13	22.7 1.6	62.33 .31	62.8 1.3
Sept 5.6	61.45 +.25	31.4 +0.8	57.29 +.26	32.6 +0.8	23.24 +1.07	24.5 +2.0	62.63 +.30	64.0 +1.2
15.6	61.69 .22	32.2 0.6	57.54 .25	33.2 0.6	24.28 1.00	26.6 2.3	62.91 .27	65.2 1.1
25.6	61.91 .20	32.6 0.3	57.77 .22	33.7 0.3	25.23 .90	29.2 2.6	63.17 .23	66.3 1.0
Oct 5.6	62.10 .17	32.8 +0.1	57.98 .19	33.9 +0.1	26.08 .79	31.9 2.9	63.40 .20	67.3 0.9
15.5	62.26 .14	32.7 −0.1	58.16 .16	33.8 0.0	26.81 .67	35.0 3.1	63.60 .19	68.2 0.7
25.5	62.39 +.11	32.4 −0.4	58.30 +.13	33.6 0.4	27.42 +.53	38.2 +3.2	63.78 +.16	68.7 +0.6
Nov 4.5	62.49 .08	32.0 0.5	58.42 .11	33.2 0.5	27.87 .38	41.4 3.3	63.93 .13	69.3 0.5
14.4	62.56 .06	31.4 0.8	58.52 .08	32.5 0.7	28.17 .22	44.8 3.3	64.04 .10	69.7 0.4
24.4	62.60 +.02	30.7 0.9	58.57 .05	31.8 0.8	28.31 +.05	48.0 3.2	64.12 .07	70.0 0.3
Dec 4.4	62.61 −.01	29.7 1.0	58.60 +.01	31.1 0.8	28.27 .10	51.2 3.0	64.17 +.03	70.2 0.2
14.4	62.[illegible]	29.1 [illegible]	58.[illegible] −.03	[illegible]	28.07 .20	54.[illegible]	64.19 .00	70.3 +0.1
24.3	62.54 .06	[illegible]	58.[illegible] .05	[illegible] 0.8	[illegible]	56.6 [illegible]	64.16 −.03	70.3 −0.1
34.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.11 .05	70.2 −0.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Persei. Right Ascension.	α Persei. Declination North.	ε Eridani. Right Ascension.	ε Eridani. Declination South.	δ Persei. Right Ascension.	δ Persei. Declination North.	η Tauri. Right Ascension.	η Tauri. Declination North.
	h m 3 16	° ′ +49 29	h m 3 28	° ′ − 9 47	h m 3 35	° ′ +47 27	h m 3 41	° ′ +23 47
	s	″	s	″	s	″	s	″
(Dec. 30.4)	60.12 −.10	58.6 +1.2	6.30 −.06	80.4 −1.3	37.57 −.08	46.3 +1.2	23.43 −.04	23.4 +0.1
Jan. 9.3	59.99 .15	59.6 0.8	6.22 .09	81.6 1.1	37.47 .13	47.3 0.9	23.37 .07	23.5 0.0
19.3	59.82 .19	60.3 0.5	6.12 .12	82.6 0.9	37.32 .17	48.0 0.6	23.28 .11	23.4 −0.1
29.3	59.61 .22	60.6 +0.1	5.99 .14	83.4 0.7	37.13 .20	48.4 +0.2	23.16 .13	23.2 0.2
Feb. 8.2	59.37 .24	60.5 −0.3	5.84 .15	84.0 0.4	36.91 .23	48.5 −0.1	23.01 .15	23.0 0.3
18.2	59.13 −.24	60.0 −0.7	5.68 −.16	84.3 −0.2	36.68 −.24	48.2 −0.5	22.85 −.16	22.6 −0.4
28.2	58.88 .24	59.2 1.0	5.52 .16	84.4 +0.1	36.44 .23	47.5 0.8	22.69 .16	22.1 0.5
Mar. 10.2	58.65 .22	58.0 1.3	5.36 .15	84.2 0.3	36.21 .22	46.6 1.1	22.52 .15	21.5 0.6
20.1	58.45 .18	56.6 1.5	5.22 .13	83.7 0.6	36.00 .19	45.3 1.3	22.38 .13	20.9 0.6
30.1	58.29 .13	55.0 1.7	5.11 .10	83.0 0.8	35.84 .14	43.9 1.5	22.26 .10	20.3 0.6
Apr. 9.1	58.19 −.07	53.2 −1.8	5.02 −.07	82.0 +1.1	35.72 −.09	42.3 −1.6	22.17 −.07	19.7 −0.6
19.1	58.15 −.01	51.4 1.8	4.98 −.02	80.8 1.3	35.65 −.03	40.7 1.7	22.13 −.02	19.1 0.5
29.0	58.17 +.06	49.6 1.7	4.98 +.02	79.3 1.6	35.66 +.03	39.0 1.6	22.13 +.03	18.7 0.4
May 9.0	58.26 .13	47.9 1.6	5.02 .06	77.6 1.8	35.72 .10	37.4 1.5	22.18 .08	18.4 −0.2
19.0	58.42 .19	46.4 1.4	5.10 .11	75.8 1.9	35.85 .16	35.9 1.4	22.28 .13	18.3 0.0
28.9	58.65 +.26	45.1 −1.2	5.23 +.15	73.8 +2.0	36.05 +.23	34.7 −1.2	22.43 +.17	18.3 +0.1
June 7.9	58.94 .31	44.1 0.9	5.41 .19	71.7 2.1	36.31 .28	33.6 0.9	22.63 .22	18.5 0.3
17.9	59.27 .36	43.4 0.6	5.62 .22	69.6 2.1	36.61 .33	32.8 0.6	22.86 .25	19.0 0.5
27.9	59.65 .40	43.0 −0.3	5.86 .25	67.4 2.1	36.96 .37	32.4 −0.3	23.13 .28	19.6 0.7
July 7.8	60.07 .42	42.9 +0.1	6.13 .28	65.3 2.0	37.35 .40	32.2 0.0	23.43 .32	20.4 0.8
17.8	60.50 +.44	43.2 +0.4	6.41 +.29	63.4 +1.9	37.76 +.42	32.3 +0.3	23.74 +.32	21.3 +1.0
27.8	60.95 .45	43.8 0.7	6.71 .30	61.6 1.7	38.19 .43	32.7 0.5	24.07 .33	22.3 1.1
Aug. 6.8	61.40 .45	44.6 1.0	7.01 .30	60.0 1.4	38.63 .44	33.4 0.8	24.41 .34	23.4 1.1
16.7	61.85 .44	45.8 1.3	7.31 .30	58.7 1.1	39.07 .43	34.3 1.1	24.75 .33	24.6 1.1
26.7	62.29 .43	47.2 1.5	7.61 .29	57.8 0.8	39.50 .42	35.5 1.3	25.08 .32	25.7 1.1
Sept. 5.7	62.71 +.41	48.8 +1.7	7.89 +.27	57.1 +0.4	39.91 +.41	36.9 +1.5	25.40 +.31	26.8 +1.1
15.6	63.10 .38	50.5 1.9	8.16 .26	56.9 +0.1	40.31 .38	38.4 1.6	25.70 .29	27.9 1.0
25.6	63.47 .35	52.5 2.0	8.40 .23	57.0 −0.3	40.68 .36	40.1 1.7	25.98 .27	28.8 0.9
Oct. 5.6	63.80 .31	54.5 2.1	8.62 .21	57.5 0.6	41.02 .33	41.8 1.8	26.25 .25	29.7 0.8
15.6	64.10 .27	56.6 2.1	8.82 .18	58.2 0.9	41.33 .29	43.7 1.9	26.49 .23	30.5 0.7
25.5	64.35 +.23	58.7 +2.1	8.99 +.16	59.3 −1.2	41.60 +.25	45.6 +1.9	26.70 +.20	31.2 +0.7
Nov. 4.5	64.57 .19	60.9 2.1	9.13 .13	60.6 1.4	41.84 .22	47.6 1.9	26.89 .17	31.8 0.6
14.5	64.73 .14	63.0 2.1	9.24 .09	62.0 1.5	42.02 .16	49.5 1.9	27.04 .14	32.3 0.5
24.5	64.84 .09	65.0 2.0	9.31 .06	63.6 1.6	42.16 .11	51.4 1.8	27.16 .10	32.8 0.4
Dec. 4.4	64.90 +.03	66.9 1.8	9.36 +.03	65.2 1.6	42.25 .06	53.1 1.7	27.24 .06	33.1 0.3
14.4	64.91 −.02	68.6 +1.6	9.37 −.01	66.8 −1.5	42.29 +.01	54.7 +1.5	27.29 +.03	33.4 +0.2
24.4	64.86 .07	70.0 1.4	9.34 .04	68.2 1.4	42.27 −.05	56.2 1.3	27.30 −.01	33.6 +0.1
34.4	64.76 −.12	71.2 +1.1	9.28 −.07	69.6 −1.2	42.20 −.10	57.3 +1.1	27.26 −.05	33.6 0.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date	ζ Persei Right Ascension	ζ Persei Declination North	γ Eridani Right Ascension	γ Eridani Declination South	γ Tauri Right Ascension	γ Tauri Declination North	ε Tauri Right Ascension	ε Tauri Declination North
	h m 3 47	° ′ +31 34	h m 3 53	° ′ −13 47	h m 4 13	° ′ +15 22	h m 4 22	° ′ +18 57
	s	″	s	″	s	″	s	″
Dec. 30.4	41.32 −.05	52.6 +0.5	15.24 −.05	63.7 −1.6	57.78 −.02	53.1 −0.3	58.04 .00	16.4 −0.1
Jan. 9.3	41.26 .06	53.0 0.3	15.18 .06	64.1 1.3	57.75 .03	52.9 0.3	58.02 −.02	16.3 0.0
19.3	41.16 .12	53.3 +0.0	15.08 .12	65.4 1.2	57.68 .09	52.5 0.3	57.96 .08	16.2 0.0
29.3	41.03 .14	53.3 0.0	14.95 .14	66.3 0.8	57.58 .10	52.2 0.3	57.86 .11	15.9 0.0
Feb. 8.3	40.88 .17	53.2 −0.0	14.80 .16	67.0 0.6	57.45 .14	51.9 0.3	57.74 .14	15.7 0.3
18.2	40.70 −.18	52.9 −0.4	14.64 −.17	67.4 −0.3	57.30 −.16	51.5 −0.3	57.58 −.16	15.4 −0.3
28.2	40.52 .18	52.4 0.6	14.47 .17	67.6 0.0	57.14 .16	51.2 0.3	57.42 .17	15.1 0.3
Mar. 10.2	40.34 .17	51.7 0.7	14.30 .16	67.4 +0.3	56.98 .16	50.9 0.3	57.25 .16	14.8 0.3
20.2	40.18 .15	50.9 0.8	14.14 .15	66.9 0.6	56.82 .14	50.6 0.3	57.09 .15	14.4 0.3
30.1	40.04 .10	50.0 0.9	14.02 .10	66.2 0.9	56.69 .10	50.3 0.2	56.95 .13	14.1 0.3
Apr. 9.1	39.94 −.08	49.1 −0.9	13.90 −.09	65.1 +1.2	56.58 −.09	50.1 −0.2	56.83 −.10	13.7 −0.3
19.1	39.89 −.03	48.2 0.9	13.83 .05	63.8 1.4	56.51 .05	50.0 0.0	56.76 .06	13.5 0.0
29.0	39.88 +.02	47.4 0.8	13.80 −.01	62.2 1.7	56.48 −.02	50.0 +0.1	56.72 −.01	13.3 −0.1
May 9.0	39.93 .07	46.6 0.7	13.82 +.04	60.4 1.9	56.50 +.04	50.2 0.2	56.73 +.03	13.2 0.0
19.0	40.03 .13	46.0 0.5	13.88 .08	58.5 2.0	56.57 .09	50.5 0.4	56.79 .08	13.3 +0.1
29.0	40.18 +.16	45.6 −0.3	13.98 +.11	56.3 +2.1	56.68 +.13	50.9 +0.4	56.89 +.13	13.6 +0.3
June 7.9	40.35 .20	45.4 −0.1	14.13 .17	54.1 2.3	56.83 .18	51.3 0.7	57.05 .17	13.9 0.4
17.9	40.63 .26	45.3 +0.1	14.32 .21	51.8 2.3	57.03 .21	52.2 0.8	57.24 .22	14.4 0.6
27.9	40.92 .30	45.5 0.3	14.55 .26	49.6 2.0	57.26 .25	53.1 0.9	57.47 .26	15.0 0.7
July 7.9	41.23 .32	45.9 0.5	14.80 .28	47.4 2.1	57.52 .27	54.1 1.0	57.73 .27	15.8 0.8
17.8	41.56 +.34	46.5 +0.7	15.07 +.28	45.3 +2.0	57.80 +.29	55.1 +1.0	58.01 +.30	16.6 +0.9
27.8	41.91 .35	47.2 0.8	15.36 .30	43.5 1.8	58.10 .31	56.2 1.1	58.32 .32	17.5 0.9
Aug. 6.8	42.27 .36	48.1 1.0	15.66 .30	41.8 1.5	58.42 .32	57.2 1.0	58.63 .32	18.4 0.9
16.7	42.63 .36	49.1 1.0	15.97 .30	40.5 1.1	58.73 .32	58.3 1.0	58.95 .32	19.3 0.9
26.7	42.98 .35	50.2 1.2	16.27 .30	39.6 0.8	59.05 .32	59.2 0.9	59.27 .32	20.2 0.8
Sept. 5.7	43.32 +.34	51.3 +1.1	16.56 +.29	39.0 +0.4	59.36 +.31	60.0 +0.8	59.59 +.31	21.0 +0.7
15.7	43.65 .32	52.5 1.0	16.84 .27	38.8 0.0	59.66 .29	60.7 0.6	59.90 .30	21.7 0.6
25.6	43.96 .30	53.7 1.2	17.10 .25	39.0 −0.4	59.95 .28	61.3 0.5	60.20 .29	22.2 0.5
Oct. 5.6	44.25 .28	54.8 1.1	17.34 .23	39.7 0.8	60.22 .26	61.7 0.3	60.48 .27	22.7 0.4
15.6	44.51 .24	55.9 1.1	17.56 .20	40.6 1.1	60.47 .23	61.9 +0.1	60.75 .25	23.0 0.3
25.6	44.75 +.21	57.0 +1.0	17.75 +.18	41.9 1.4	60.70 +.22	62.0 0.0	60.99 +.21	23.3 +0.2
Nov. 4.5	44.95 .18	58.0 1.0	17.92 .15	43.5 1.6	60.91 .19	62.0 −0.1	61.21 .20	23.4 +0.1
14.5	45.13 .15	59.0 0.9	18.05 .12	45.2 1.8	61.08 .16	61.9 0.1	61.40 .17	23.5 0.0
24.5	45.26 .12	59.9 0.9	18.15 .08	47.0 1.9	61.23 .13	61.7 0.2	61.56 .14	23.4 0.0
Dec. 4.4	45.36 .08	60.7 0.8	18.22 .05	48.9 1.9	61.34 .09	61.4 0.3	61.68 .10	23.4 0.1
14.4	45.41 +.03	61.4 +0.7	18.25 +.01	50.7 −1.8	61.41 +.05	61.1 −0.3	61.76 +.06	23.3 −0.2
24.4	45.42 −.01	62.0 0.5	18.24 −.03	52.5 1.7	61.45 +.00	60.8 0.3	61.81 +.01	23.2 0.2
34.4	45.39 −.05	62.5 +0.4	18.20 −.06	54.1 −1.5	61.44 −.03	60.4 −0.3	61.81 −.02	23.0 −0.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Tauri. (*Aldebaran.*) Right Ascension.	α Tauri. Declination *North.*	α Camelopardalis. Right Ascension.	α Camelopardalis. Declination *North.*	ι Aurigæ. Right Ascension.	ι Aurigæ. Declination *North.*	11 Orionis. Right Ascension.	11 Orionis. Declination *North.*
	h m 4 30	° ′ +16 18	h m 4 43	° ′ +66 9	h m 4 50	° ′ +33 0	h m 4 58	° ′ +15 15
	s	″	s	″	s	″	s	″
(Dec. 30.4)	2.55 +.01	16.7 −0.3	52.38 −.04	78.4 +2.4	19.42 +.03	21.5 +0.7	43.02 +.03	45.8 −0.4
Jan. 9.4	2.54 −.04	16.5 0.3	52.28 .15	80.6 2.1	19.42 −.02	22.1 0.6	43.03 −.01	45.4 0.3
19.4	2.48 .08	16.2 0.3	52.09 .24	82.5 1.8	19.37 .07	22.6 0.5	42.99 .06	45.1 0.3
29.3	2.39 .11	15.9 0.3	51.80 .32	84.1 1.4	19.28 .12	23.0 0.3	42.92 .09	44.8 0.3
Feb. 8.3	2.26 .14	15.6 0.3	51.45 .38	85.2 0.9	19.14 .15	23.2 +0.2	42.80 .13	44.5 0.3
18.3	2.11 −.16	15.3 −0.3	51.04 −.43	85.9 +0.5	18.97 −.18	23.3 0.0	42.66 −.15	44.3 −0.3
28.2	1.95 .17	15.0 0.3	50.60 .45	86.1 0.0	18.79 .19	23.2 −0.1	42.50 .16	44.0 0.2
Mar. 10.2	1.78 .16	14.7 0.3	50.14 .44	85.9 −0.5	18.59 .19	22.9 0.3	42.33 .17	43.8 0.2
20.2	1.62 .15	14.4 0.3	49.71 .42	85.1 1.0	18.40 .18	22.5 0.5	42.16 .16	43.6 0.2
30.2	1.48 .13	14.1 0.3	49.31 .37	83.9 1.4	18.23 .16	21.9 0.6	42.01 .14	43.4 0.2
Apr. 9.1	1.36 −.10	13.9 −0.2	48.97 −.30	82.3 −1.7	18.08 −.13	21.2 −0.7	41.88 −.12	43.3 −0.1
19.1	1.28 .06	13.8 −0.1	48.70 .22	80.4 2.0	17.97 .09	20.4 0.8	41.78 .08	43.2 0.0
29.1	1.24 −.02	13.8 0.0	48.52 .13	78.2 2.2	17.90 −.04	19.6 0.8	41.71 −.04	43.3 +0.1
May 9.1	1.24 +.03	13.8 +0.1	48.44 −.03	75.9 2.3	17.88 +.01	18.8 0.8	41.69 .00	43.4 0.2
19.0	1.29 .07	14.0 0.3	48.46 +.08	73.5 2.4	17.92 .06	18.1 0.7	41.71 +.05	43.6 0.3
29.0	1.39 +.12	14.4 +0.4	48.59 +.18	71.2 −2.3	18.01 +.11	17.4 −0.6	41.78 +.09	43.9 +0.4
June 8.0	1.53 .16	14.9 0.5	48.82 .28	68.9 2.2	18.15 .16	16.8 0.5	41.89 .13	44.4 0.5
17.9	1.71 .20	15.5 0.6	49.14 .37	66.8 2.0	18.33 .22	16.4 0.4	42.05 .17	45.0 0.6
27.9	1.93 .23	16.2 0.8	49.56 .45	64.9 1.8	18.56 .25	16.1 0.2	42.24 .22	45.6 0.7
July 7.9	2.18 .26	17.0 0.9	50.04 .52	63.2 1.5	18.83 .28	16.0 −0.1	42.47 .24	46.4 0.8
17.9	2.46 +.28	17.9 +0.9	50.60 +.58	61.9 −1.2	19.13 +.31	16.0 +0.1	42.72 +.27	47.2 +0.8
27.8	2.75 .30	18.9 0.9	51.20 .63	60.8 0.9	19.45 .33	16.1 0.2	43.00 .29	48.0 0.8
Aug. 6.8	3.06 .31	19.8 0.9	51.85 .66	60.1 0.5	19.79 .35	16.4 0.3	43.29 .30	48.8 0.8
16.8	3.37 .32	20.7 0.9	52.52 .68	59.8 −0.1	20.14 .35	16.8 0.4	43.60 .31	49.6 0.7
26.8	3.69 .32	21.6 0.8	53.21 .69	59.9 +0.2	20.50 .36	17.2 0.5	43.91 .31	50.3 0.6
Sept. 5.7	4.00 +.31	22.3 +0.7	53.90 +.69	60.3 +0.6	20.86 +.36	17.8 +0.6	44.22 +.31	50.9 +0.5
15.7	4.31 .30	22.9 0.5	54.59 .68	61.0 0.9	21.21 .35	18.4 0.6	44.53 .31	51.3 0.4
25.7	4.61 .29	23.4 0.4	55.26 .66	62.1 1.2	21.56 .34	19.0 0.6	44.83 .30	51.6 0.2
Oct. 5.6	4.89 .27	23.7 0.2	55.90 .63	63.4 1.5	21.89 .33	19.6 0.6	45.12 .29	51.8 +0.1
15.6	5.15 .25	23.9 +0.1	56.51 .58	65.1 1.8	22.21 .31	20.3 0.7	45.40 .27	51.8 −0.1
25.6	5.40 +.23	24.0 0.0	57.07 +.53	67.0 +2.0	22.51 +.29	21.0 +0.7	45.67 +.25	51.6 −0.2
Nov. 4.6	5.62 .21	23.9 −0.1	57.57 .47	69.2 2.3	22.78 .26	21.6 0.7	45.91 .23	51.4 0.3
14.6	5.81 .18	23.8 0.1	58.01 .39	71.5 2.4	23.02 .23	22.3 0.7	46.13 .21	51.1 0.4
24.5	5.98 .15	23.6 0.2	58.36 .31	74.0 2.5	23.23 .19	23.0 0.7	46.32 .17	50.7 0.4
Dec. 4.5	6.10 .11	23.3 0.3	58.63 .22	76.6 2.6	23.40 .15	23.8 0.7	46.48 .14	50.3 0.4
14.5	6.19 +.07	23.0 −0.3	58.79 +.12	79.1 +2.5	23.53 +.10	24.5 +0.7	46.60 +.10	49.9 −0.4
24.4	6.24 +.01	22.7 0.3	58.86 +.01	81.6 2.4	23.61 .05	25.1 0.7	46.67 .06	49.5 0.4
34.4	6.25 −.01	22.4 −0.3	58.82 −.08	84.0 +2.3	23.64 +.01	25.8 +0.6	46.71 +.01	49.1 −0.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	α Aurigæ (Capella) Right Ascension	α Aurigæ (Capella) Declination North	β Orionis (Rigel) Right Ascension	β Orionis (Rigel) Declination South	β Tauri Right Ascension	β Tauri Declination North	Groombridge 966 Right Ascension	Groombridge 966 Declination North
	h m 5 9	° ′ +45 53	h m 5 9	° ′ − 8 18	h m 5 19	° ′ +28 31	h m 5 25	° ′ +74 58
	s	″	s	″	s	″	s	″
Dec 30.4	7.54 +.02	46.4 +1.4	37.22 +.00	70.2 −1.7	49.15 +.08	21.8 +0.4	64.25 +.00	43.4 +0.9
Jan. 9.4	7.55 −.02	47.7 1.3	37.22 −.02	71.8 1.5	49.18 +.01	22.2 0.4	64.19 −.14	46.1 2.6
19.4	7.50 .08	48.8 1.1	37.18 .06	73.2 1.3	49.16 .04	22.5 0.3	63.96 .30	48.7 2.4
29.4	7.39 .13	49.9 0.9	37.10 .10	74.4 1.1	49.09 .09	22.8 0.3	63.59 .44	50.8 2.0
Feb 8.3	7.23 .18	50.7 0.6	36.98 .13	75.4 0.9	48.98 .13	23.1 0.2	63.08 .56	52.6 1.6
18.3	7.03 −.22	51.2 +0.3	36.84 −.16	76.1 −0.4	48.83 −.16	23.2 +0.1	62.46 −.65	54.0 +1.1
28.3	6.80 .25	51.4 0.0	36.67 .17	76.6 0.3	48.66 .18	23.2 −0.1	61.77 .71	54.8 +0.6
Mar 10.2	6.56 .26	51.2 −0.3	36.50 .18	76.9 −0.1	48.48 .19	23.1 0.2	61.04 .73	55.1 0.0
20.2	6.32 .25	50.8 0.6	36.32 .17	76.8 +0.1	48.29 .18	22.9 0.3	60.32 .70	54.8 −0.5
30.2	6.09 .22	50.1 0.8	36.16 .16	76.5 0.4	48.11 .17	22.5 0.4	59.60 .67	54.1 1.0
Apr 9.2	5.89 −.18	49.2 1.0	36.01 −.13	76.0 +0.7	47.96 .14	22.1 −0.5	58.96 −.60	52.8 −1.5
19.1	5.74 .13	48.1 1.2	35.89 .10	75.2 0.9	47.83 .11	21.6 0.5	58.41 .49	51.1 1.9
29.1	5.63 .08	46.8 1.4	35.81 .07	74.2 1.1	47.74 .07	21.0 0.5	57.97 .37	49.0 2.2
May 9.1	5.58 .03	45.4 1.4	35.76 .03	73.0 1.1	47.70 .02	20.5 0.5	57.67 .23	46.6 2.5
19.1	5.59 +.04	43.9 1.4	35.76 +.02	71.5 1.5	47.72 +.03	20.0 0.5	57.52 −.07	44.0 2.6
29.0	5.66 +.10	42.5 1.4	35.81 +.06	69.9 +1.7	47.76 +.08	19.5 0.4	57.53 +.08	41.3 2.7
June 8.0	5.79 .16	41.1 1.3	35.89 .10	68.2 1.8	47.86 .13	19.1 0.3	57.68 .21	38.6 2.7
18.0	5.98 .22	39.9 1.1	36.00 .14	66.4 1.9	48.01 .17	18.8 0.2	57.99 .38	35.9 2.6
28.0	6.21 .27	38.8 1.0	36.17 .18	64.5 1.9	48.22 .22	18.6 −0.1	58.45 .52	33.4 2.4
July 7.9	6.52 .31	37.8 0.9	36.36 .21	62.6 1.8	48.44 .25	18.5 0.0	59.03 .64	31.1 2.1
17.9	6.85 +.35	37.1 0.7	36.59 +.24	60.8 +1.7	48.70 +.28	18.6 +0.1	59.73 +.75	28.9 2.0
27.9	7.22 .38	36.5 0.4	36.85 .26	59.2 1.6	48.99 .30	18.7 0.1	60.54 .86	27.1 1.7
Aug 6.8	7.62 .40	36.2 0.1	37.10 .27	57.6 1.4	49.30 .32	18.8 0.2	61.42 .94	25.6 1.3
16.8	8.03 .42	36.0 0.1	37.38 .28	56.3 1.1	49.62 .33	19.1 0.3	62.38 .98	24.5 0.9
26.8	8.42 .42	36.0 +0.1	37.67 .29	55.3 0.9	49.96 .34	19.4 0.3	63.39 1.02	23.8 0.6
Sept 5.8	8.85 +.42	36.2 +0.3	37.96 +.29	54.6 +0.5	50.30 +.34	19.7 +0.3	64.43 +1.04	23.4 0.2
15.7	9.27 .42	36.6 0.5	38.26 .29	54.3 +0.1	50.64 .34	19.9 0.3	65.48 1.05	23.4 +0.1
25.7	9.69 .41	37.1 0.8	38.55 .28	54.3 −0.2	50.98 .33	20.2 0.3	66.54 1.04	23.9 0.6
Oct 5.7	10.11 .40	37.8 0.8	38.83 .27	54.7 0.6	51.31 .32	20.5 0.3	67.57 1.00	24.7 1.0
15.6	10.49 .38	38.8 0.9	39.09 .25	55.5 0.9	51.63 .30	20.8 0.3	68.58 .97	25.9 1.4
25.6	[illegible]	[illegible]	39.33 +.24	56.6 −1.2	51.94 +.29	21.0 +0.3	69.53	[illegible]
Nov 4.6	[illegible]	[illegible]	[illegible]	57.9 1.3	52.23 .27	21.3 0.3	[illegible]	[illegible]
14.6	[illegible]	[illegible]	[illegible]	59.5 1.7	52.49 .24	21.5 0.3	[illegible]	[illegible]
24.5	[illegible]	[illegible]	[illegible]	61.3 1.8	52.72 .22	21.8 0.2	[illegible]	[illegible]
Dec 4.5	[illegible]	[illegible]	[illegible]	63.1 1.9	52.91 .17	22.1 0.1	[illegible]	[illegible]
14.5	[illegible]	[illegible]	[illegible]	[illegible] 1.8	53.07 +.13	22.3 +0.3	[illegible]	[illegible] +2.8
24.5	[illegible]	[illegible]	[illegible]	[illegible] 1.8	53.18 .08	22.6 0.3	[illegible]	42.5 2.8
34.4	[illegible]	[illegible]	[illegible]	[illegible] 1.6	53.24 +.04	[illegible]	[illegible]	[illegible]

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Orionis.		α Leporis.		ε Orionis.		α Columbæ.	
	Right Ascension.	Declination *South.*	Right Ascension.	Declination *South.*	Right Ascension.	Declination *South.*	Right Ascension.	Declination *South.*
	h m 5 26	° ′ − 0 22	h m 5 28	° ′ −17 53	h m 5 30	° ′ − 1 15	h m 5 35	° ′ −34 7
	s	″	s	″	s	″	s	″
(Dec. 30.4)	46.68 +.04	26.6 −1.3	13.25 +.02	42.5 −2.1	61.22 +.05	58.9 −1.3	57.35 .00	42.6 −2.9
Jan. 9.4	46.70 .00	27.8 1.2	13.25 −.02	44.6 2.0	61.25 .00	60.2 1.2	57.33 −.05	45.4 2.6
19.4	46.68 −.04	28.9 1.1	13.21 .06	46.5 1.8	61.23 −.04	61.4 1.1	57.26 .10	47.9 2.5
29.4	46.62 .08	29.9 0.9	13.12 .10	48.1 1.5	61.17 .08	62.4 0.9	57.14 .14	50.1 2.0
Feb. 8.3	46.52 .11	30.7 0.7	13.00 .14	49.4 1.2	61.07 .11	63.3 0.7	56.98 .18	51.9 1.6
18.3	46.38 −.14	31.3 −0.5	12.85 −.16	50.5 −0.8	60.94 −.14	63.9 −0.6	56.79 −.21	53.2 −1.2
28.3	46.23 .16	31.8 0.3	12.67 .18	51.1 0.5	60.79 .16	64.4 0.4	56.57 .23	54.1 0.7
Mar. 10.3	46.06 .17	32.0 −0.2	12.49 .19	51.5 −0.2	60.62 .17	64.6 −0.2	56.33 .24	54.6 −0.2
20.2	45.89 .17	32.1 0.0	12.30 .19	51.5 +0.2	60.45 .17	64.7 0.0	56.10 .23	54.6 +0.2
30.2	45.73 .16	32.0 +0.2	12.11 .18	51.2 0.5	60.28 .16	64.6 +0.2	55.86 .22	54.2 0.7
Apr. 9.2	45.58 −.14	31.7 +0.4	11.94 −.16	50.5 +0.8	60.13 −.14	64.3 +0.4	55.65 −.20	53.3 +1.1
19.1	45.46 .11	31.2 0.6	11.80 .13	49.5 1.1	60.01 .11	63.8 0.6	55.46 .17	52.0 1.5
29.1	45.37 .07	30.6 0.7	11.69 .09	48.2 1.4	59.91 .07	63.2 0.8	55.30 .13	50.4 1.8
May 9.1	45.32 −.03	29.8 0.9	11.62 .05	46.7 1.7	59.86 −.03	62.3 0.9	55.19 .09	48.4 2.1
19.1	45.31 +.01	28.8 1.1	11.58 −.01	44.9 1.9	59.84 +.01	61.3 1.1	55.12 −.05	46.1 2.4
29.0	45.34 +.05	27.7 +1.2	11.60 +.03	43.0 +2.0	59.87 +.05	60.2 +1.2	55.09 .00	43.6 +2.6
June 8.0	45.41 .09	26.4 1.3	11.65 .08	40.9 2.2	59.94 .09	58.9 1.3	55.12 +.05	40.8 2.8
18.0	45.53 .13	25.0 1.4	11.75 .12	38.7 2.3	60.05 .13	57.5 1.4	55.19 .09	38.0 2.9
28.0	45.68 .17	23.6 1.4	11.89 .16	36.4 2.3	60.20 .17	56.0 1.5	55.31 .14	35.1 2.9
July 7.9	45.87 .20	22.2 1.5	12.06 .19	34.1 2.2	60.38 .20	54.5 1.5	55.47 .18	32.3 2.8
17.9	46.09 +.23	20.7 +1.4	12.27 +.22	31.9 +2.1	60.60 +.23	53.1 +1.4	55.67 +.22	29.6 +2.6
27.9	46.33 .25	19.4 1.3	12.50 .24	29.9 1.9	60.83 .25	51.7 1.3	55.90 .25	27.1 2.4
Aug. 6.8	46.59 .27	18.1 1.2	12.76 .26	28.1 1.6	61.09 .27	50.4 1.2	56.16 .27	24.9 2.0
16.8	46.87 .28	17.1 1.0	13.03 .28	26.6 1.3	61.36 .28	49.3 1.0	56.45 .29	23.0 1.6
26.8	47.15 .29	16.2 0.7	13.32 .29	25.4 1.0	61.65 .29	48.5 0.7	56.75 .31	21.6 1.2
Sept 5.8	47.44 +.29	15.6 +0.5	13.61 +.30	24.6 +0.6	61.94 +.29	47.9 +0.5	57.07 +.32	20.7 +0.7
15.7	47.74 .29	15.3 +0.2	13.91 .30	24.3 +0.1	62.23 .29	47.5 +0.2	57.39 .32	20.3 +0.1
25.7	48.03 .29	15.2 −0.1	14.20 .29	24.4 −0.3	62.52 .29	47.5 −0.1	57.72 .32	20.4 −0.4
Oct. 5.7	48.32 .28	15.5 0.4	14.49 .28	24.9 0.8	62.81 .28	47.8 0.4	58.04 .31	21.2 1.0
15.7	48.60 .27	16.1 0.7	14.77 .27	25.9 1.2	63.09 .27	48.4 0.7	58.34 .30	22.4 1.5
25.6	48.86 +.26	16.9 −1.0	15.04 +.25	27.3 −1.6	63.36 +.26	49.3 −1.0	58.63 +.28	24.2 −2.0
Nov 4.6	49.11 .24	18.0 1.2	15.29 .23	29.1 1.9	63.61 .24	50.4 1.2	58.90 .25	26.4 2.4
14.6	49.34 .21	19.3 1.3	15.51 .20	31.1 2.1	63.84 .22	51.7 1.4	59.13 .22	29.0 2.7
24.5	49.54 .18	20.6 1.4	15.70 .17	33.4 2.3	64.04 .19	53.2 1.5	59.33 .18	31.8 2.9
Dec. 4.5	49.70 .15	22.1 1.5	15.85 .14	35.7 2.4	64.21 .15	54.7 1.5	59.48 .13	34.9 3.0
14.5	49.83 +.11	23.6 −1.4	15.97 +.10	38.1 −2.4	64.35 +.12	56.2 −1.5	59.59 +.09	38.0 −3.1
24.5	49.93 .07	25.0 1.4	16.05 .05	40.5 2.3	64.44 .08	57.7 1.4	59.66 +.04	41.0 3.0
34.4	49.97 +.03	26.3 −1.3	16.08 +.01	42.7 −2.1	64.49 +.03	59.1 −1.3	59.67 −.01	43.9 −2.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Orionis. Right Ascension.	α Orionis. Declination North.	ν Orionis. Right Ascension.	ν Orionis. Declination North.	22 Camelop (H.) Right Ascension.	22 Camelop (H.) Declination North.	μ Geminorum. Right Ascension.	μ Geminorum. Declination North.
	h m 5 49	° ′ + 7 23	h m 6 1	° ′ +14 46	h m 6 7	° ′ +(69) 21	h m 6 16	° ′ +22 33
	s	″	s	″	s	″	s	″
Dec. 30.5	37.83 +.00	21.2 −0.3	43.74 +.09	55.6 −0.1	34.26 +.11	25.4 +0.8	46.14 +.11	63.6 0.0
Jan. 9.5	37.88 +.05	20.3 0.8	43.81 +.06	55.2 0.4	35.05 +.05	31.0 1.5	46.22 .08	63.5 0.0
19.4	37.88 .00	19.6 0.7	43.82 .0	54.7 0.4	35.01 .4	33.4 2.4	46.26 +.04	63.6 +0.1
29.4	37.84 .04	18.9 0.4	43.80 .03	54.4 0.3	34.95 .06	35.7 2.1	46.24 .04	63.6 0.1
Feb. 8.4	37.75 .10	18.3 0.5	43.72 .09	54.2 0.2	34.58 .32	37.7 2.0	46.18 .09	63.8 0.1
18.4	37.64 .13	17.9 0.4	43.61 −.11	54.0 0.2	34.21 .41	39.4 +1.4	46.07 −.11	63.9 +0.1
28.3	37.49 .16	17.6 0.3	43.47 .15	53.9 0.1	33.76 .47	40.6 1.0	45.93 .15	64.0 0.1
Mar. 10.3	37.33 .17	17.4 0.2	43.31 .17	53.8 0.1	33.26 .51	41.3 +0.5	45.76 .17	64.1 +0.1
20.3	37.16 .17	17.3 0.1	43.14 .17	53.7 0.1	32.73 .53	41.6 0.0	45.59 .18	64.1 0.0
30.3	37.00 .16	17.3 +0.1	42.96 .18	53.6 0	32.21 .51	41.3 0.5	45.42 .17	64.1 0.0
Apr. 9.2	36.84 .16	17.4 +0.1	42.81 −.15	53.6 0.0	31.71 .47	40.6 1.0	45.24 −.18	64.0 0.1
19.2	36.71 .11	17.6 0.3	42.70 .11	53.7 0.1	31.26 .41	39.4 1.4	45.10 .13	63.9 0.1
29.2	36.61 .10	17.9 0.4	42.57 .13	53.7 +0.1	[illegible]	37.5 1.8	44.98 .12	63.7 0.1
May 9.2	36.55 .06	18.3 0.4	[illegible]	53.8 0.1	[illegible]	35.9 2.1	44.89 .09	63.5 0.1
19.1	36.52 .03	18.9 0.6	42.46 .11	54.0 0.2	[illegible]	33.7 2.3	44.85 .04	63.4 0.0
29.1	36.54 +.02	19.5 +0.7	42.48 +.02	54.3 +0.3	[illegible]	31.3 −2.4	44.85 +.00	63.2 −0.1
June 8.1	36.60 .06	20.3 0.8	42.55 .07	54.6 0.3	[illegible]	28.8 2.5	44.90 .05	63.0 0.1
18.0	36.70 .10	21.2 0.9	42.65 .11	55.0 0.4	[illegible]	26.3 2.5	44.98 .08	62.9 0.1
28.0	36.84 .14	22.1 0.9	42.76 .13	55.4 0.4	[illegible]	23.5 2.5	45.11 .13	62.9 0.0
July 8.0	37.02 .18	23.1 1.0	42.93 .17	55.9 0.5	31.12 .30	21.4 2.4	45.28 .17	62.9 0.0
18.0	37.22 +.20	24.0 +0.9	43.14 +.21	56.5 +0.6	31.57 +.45	19.3 2.0	45.48 +.20	62.9 0.0
27.9	37.46 .24	24.9 0.9	43.37 .23	57.0 0.5	32.10 .53	17.0 2.0	45.71 .23	62.9 0.0
Aug. 6.9	37.72 .26	25.9 1.0	43.62 .25	57.5 0.5	32.73 .63	15.2 1.7	45.96 .25	63.0 0.0
16.9	37.98 .26	26.6 0.7	43.89 .27	58.0 0.5	33.37 .64	13.6 1.6	46.24 .28	63.0 0.0
26.8	38.26 .28	27.2 0.5	44.18 .29	58.3 0.3	34.08 .71	12.3 1.1	46.54 .30	63.0 0.0
Sept. 5.8	38.55 +.29	27.6 +0.3	44.48 +.30	[illegible]	34.81 +.73	11.4 −0.8	46.84 +.30	63.0 0.1
15.8	38.84 .29	27.8 +0.2	44.78 .31	[illegible]	[illegible]	10.8 0.4	47.16 .32	62.9 0.1
25.8	39.15 .31	27.8 0.1	45.10 .32	[illegible]	[illegible]	10.6 0.2	47.49 .33	62.6 0.2
Oct. 5.7	39.45 .30	27.6 0.3	45.42 .32	[illegible]	[illegible]	10.7 −0.1	47.82 .33	62.4 0.3
15.7	39.74 .29	27.8 0.3	45.72 .30	[illegible]	[illegible]	11.2 0.7	48.14 .32	62.0 0.3
25.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.0 +1.0	[illegible]	61.6 0.4
Nov. 4.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13.2 1.4	[illegible]	61.2 0.4
14.6	[illegible]	24.7 1	[illegible]	[illegible]	40.12 .61	14.8 1.7	[illegible]	60.8 0.4
24.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16.6 2.0	[illegible]	60.4 0.4
Dec. 4.6	[illegible]	22.6 0.1	[illegible]	54.7	41.22 .62	18.8 2.2	[illegible]	60.1 0.3
14.5	41.13 +.14	21.5 1.1	47.22 +.14	54.9 −0.?	41.62 +.35	21.1 +2.4	[illegible]	59.8 0.3
24.5	41.25 .12	20.4 1.0	47.35 .13	[illegible]	[illegible]	23.6 2.5	[illegible]	59.6 −0.1?
34.5	41.33 +.08	19.3 −1.0	47.44 +.09	[illegible]	[illegible]	26.1 +2.6	[illegible]	59.5 0.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Argûs. (*Canopus.*)		γ Geminorum.		α Canis Majoris. (*Sirius.*)		ε Canis Majoris.	
	Right Ascension.	Declination *South.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *South.*	Right Ascension.	Declination *South.*
	h m 6 21	° ′ −52 37	h m 6 31	° ′ +16 29	h m 6 40	° ′ −16 34	h m 6 54	° ′ −28 49
	s	″	s	″	s	″	s	″
(Dec. 30.5)	42.50 +.01	78.0 −3.6	47.97 +.12	17.6 −0.5	38.67 +.10	24.4 −2.4	36.75 +.10	51.2 −3.0
Jan. 9.5	42.48 −.06	81.5 3.4	48.07 .07	17.1 0.4	38.74 +.05	26.8 2.3	36.83 +.05	54.2 2.9
19.4	42.39 .13	84.7 3.1	48.12 +.02	16.8 0.3	38.76 .00	29.0 2.1	36.85 .00	57.0 2.7
29.4	42.23 .19	87.7 2.7	48.11 −.03	16.5 0.2	38.74 −.05	31.0 1.9	36.82 −.06	59.6 2.4
Feb. 8.4	42.01 .24	90.2 2.3	48.06 .07	16.4 0.1	38.67 .09	32.8 1.6	36.74 .10	61.8 2.1
18.4	41.74 −.29	92.3 −1.9	47.97 −.11	16.3 −0.1	38.56 −.13	34.2 −1.3	36.61 −.14	63.8 −1.7
28.3	41.48 .33	94.0 1.4	47.84 .14	16.2 0.0	38.42 .16	35.4 1.0	36.45 .17	65.3 1.3
Mar. 10.3	41.09 .35	95.1 0.9	47.68 .16	16.2 0.0	38.25 .18	36.2 0.7	36.26 .20	66.5 0.9
20.3	40.74 .36	95.7 −0.3	47.52 .17	16.2 0.0	38.06 .19	36.6 −0.3	36.06 .21	67.2 0.5
30.3	40.38 .35	95.8 +0.2	47.35 .17	16.3 0.0	37.87 .18	36.8 0.0	35.84 .21	67.5 −0.1
Apr. 9.2	40.03 −.34	95.3 +0.7	47.18 −.16	16.3 0.0	37.69 −.17	36.6 +0.3	35.63 −.20	67.4 +0.3
19.2	39.71 .31	94.4 1.2	47.03 .14	16.4 0.0	37.52 .16	36.2 0.6	35.43 .19	66.9 0.7
29.2	39.42 .27	92.9 1.6	46.91 .11	16.4 +0.1	37.37 .13	35.4 0.9	35.25 .16	66.1 1.0
May 9.2	39.17 .23	91.1 2.0	46.82 .07	16.5 0.1	37.26 .10	34.4 1.2	35.10 .13	64.9 1.4
19.1	38.96 .17	88.8 2.4	46.77 −.03	16.6 0.1	37.17 .07	33.1 1.4	34.99 .10	63.3 1.7
29.1	38.82 −.12	86.3 +2.7	46.76 +.01	16.7 +0.2	37.13 −.03	31.6 +1.6	34.91 −.06	61.4 +2.0
June 8.1	38.73 −.06	83.4 2.9	46.78 .05	16.9 0.2	37.12 +.01	29.8 1.8	34.87 −.02	59.4 2.2
18.0	38.70 .00	80.4 3.1	46.85 .09	17.1 0.2	37.15 .05	28.0 1.9	34.87 +.02	57.1 2.4
28.0	38.74 +.06	77.2 3.2	46.96 .13	17.3 0.3	37.22 .09	26.0 2.0	34.91 .06	54.6 2.5
July 8.0	38.83 .12	74.0 3.2	47.10 .16	17.6 0.3	37.32 .12	24.0 2.0	35.00 .10	52.1 2.5
18.0	38.98 +.18	70.8 +3.1	47.28 +.19	17.9 +0.3	37.47 +.16	22.0 +1.9	35.12 +.14	49.6 +2.5
27.9	39.18 .23	67.9 2.9	47.49 .22	18.2 0.3	37.64 .19	20.1 1.8	35.28 .17	47.2 2.3
Aug. 6.9	39.44 .28	65.2 2.5	47.73 .25	18.5 0.2	37.84 .22	18.4 1.6	35.47 .21	45.0 2.1
16.9	39.74 .32	62.8 2.2	47.98 .27	18.7 0.2	38.06 .24	16.9 1.4	35.69 .24	43.0 1.8
26.8	40.08 .35	60.8 1.7	48.26 .28	18.8 +0.1	38.31 .26	15.7 1.0	35.94 .26	41.4 1.5
Sept. 5.8	40.45 +.38	59.4 +1.1	48.55 +.29	18.8 0.0	38.58 +.27	14.8 +0.7	36.21 +.28	40.1 +1.0
15.8	40.85 .40	58.6 +0.5	48.85 .30	18.7 −0.2	38.86 .29	14.3 +0.3	36.50 .30	39.3 +0.6
25.8	41.25 .41	58.3 −0.1	49.16 .31	18.5 0.3	39.15 .29	14.3 −0.1	36.80 .31	39.0 0.0
Oct. 5.7	41.66 .41	58.7 0.7	49.47 .32	18.1 0.5	39.45 .30	14.6 0.5	37.12 .32	39.3 −0.5
15.7	42.07 .40	59.8 1.3	49.79 .32	17.6 0.6	39.74 .30	15.5 1.0	37.43 .32	40.0 1.0
25.7	42.46 +.38	61.4 −1.9	50.10 +.31	16.9 −0.7	40.04 +.29	16.7 −1.4	37.75 +.31	41.3 −1.5
Nov. 4.7	42.83 .35	63.7 2.5	50.41 .30	16.2 0.7	40.33 .28	18.4 1.8	38.06 .30	43.1 2.0
14.6	43.16 .30	66.4 2.9	50.70 .28	15.5 0.8	40.60 .26	20.4 2.1	38.36 .28	45.3 2.4
24.6	43.44 .25	69.5 3.3	50.97 .26	14.7 0.8	40.86 .24	22.6 2.3	38.62 .26	47.8 2.7
Dec. 4.6	43.66 .19	72.9 3.5	51.22 .23	13.9 0.7	41.08 .21	25.0 2.5	38.86 .22	50.7 2.9
14.5	43.83 +.13	76.5 3.6	51.43 +.19	13.2 −0.7	41.27 +.17	27.6 −2.5	39.06 +.18	53.7 −3.0
24.5	43.92 +.06	80.2 3.6	51.60 .15	12.5 0.6	41.42 .13	30.1 2.5	39.22 .13	56.7 3.0
34.5	43.95 .01	83.8 −3.5	51.72 +.10	12.0 −0.5	41.52 +.08	32.6 −2.4	39.33 +.09	59.8 −3.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	δ Canis Majoris Right Ascension	δ Canis Majoris Declination South	δ Geminorum Right Ascension	δ Geminorum Declination North	Piazzi VII, 67 Right Ascension	Piazzi VII, 67 Declination North	α² Geminorum (Castor) Right Ascension	α² Geminorum (Castor) Declination North
	h m 7 4	° ′ −26 13	h m 7 13	° ′ +22 10	h m 7 20	° ′ +68 40	h m 7 28	° ′ +32 6
	s	″	s	″	s	″	s	″
Dec. 30.5	14.22 +.11	42.3 0.9	60.69 +.17	20.4 −0.3	15.99 +.16	33.3 +2.4	4.38 +.10	52.5 +0.3
Jan. 9.5	14.31 .06	45.2 0.8	60.84 .12	20.1 −0.1	15.87 [illegible]	35.7 2.4	4.55 .14	52.9 0.4
19.5	14.34 +.01	47.9 0.6	60.95 .07	20.1 0.0	16.02 +.09	38.2 2.5	4.66 .08	53.4 0.6
29.5	14.33 −.04	50.4 0.4	60.97 +.01	20.1 +0.1	16.04 −.04	40.7 2.5	4.72 +.03	54.0 0.7
Feb. 8.4	14.26 .09	52.7 0.1	60.95 .04	20.2 0.2	15.94 .08	43.1 2.3	4.71 −.03	54.7 0.7
18.4	14.15 −.13	54.6 1.7	60.89 .08	20.4 +0.2	15.72 −.27	45.3 +2.1	4.66 .08	55.4 +0.7
28.4	14.01 .16	56.1 1.4	60.78 .12	20.7 0.3	15.40 .36	47.2 1.7	4.55 .10	56.2 0.7
Mar. 10.3	13.83 .19	57.3 1.0	60.64 .15	21.0 0.3	15.00 .43	48.8 1.3	4.42 .16	56.8 0.6
20.3	13.63 .20	58.1 0.6	60.49 .16	21.2 0.2	14.54 .48	49.9 0.9	4.24 .18	57.3 0.5
30.3	13.43 .20	58.4 −0.2	60.31 .17	21.4 0.2	14.04 .50	50.6 +0.4	4.05 .19	57.8 0.3
Apr. 9.3	13.23 .20	58.4 +0.2	60.14 −.17	21.6 +0.1	13.54 .50	50.7 −0.1	3.86 .18	58.0 +0.1
19.2	13.03 .18	58.0 0.4	59.98 .15	21.7 +0.1	13.05 .47	50.4 0.6	3.68 .17	58.1 0.0
29.2	12.86 .16	57.3 0.9	59.84 .13	21.7 0.0	12.60 .42	49.6 1.0	3.52 .15	58.0 0.1
May 9.2	12.72 .13	56.2 1.3	59.72 .10	21.7 0.0	12.21 .36	48.3 1.4	3.38 .12	57.8 0.3
19.2	12.60 .10	54.7 1.6	59.64 .07	21.6 −0.1	11.93 .26	46.7 1.8	3.28 .08	57.4 0.4
29.1	12.52 .06	53.0 +1.8	59.57 .03	21.5 0.1	11.65 .19	44.8 2.1	3.21 −.04	56.9 0.5
June 8.1	12.47 .02	51.1 2.0	59.58 +.01	21.4 0.1	11.51 .09	42.5 2.3	3.19 .00	56.3 0.6
18.1	12.47 +.02	48.9 2.2	59.62 .05	21.2 0.2	11.47 +.01	40.1 2.5	3.21 +.04	55.6 0.7
28.0	12.51 .06	46.6 2.3	59.69 .09	21.0 0.2	11.53 .11	37.5 2.6	3.27 .08	54.9 0.8
July 8.0	12.59 .09	44.3 2.4	59.80 .13	20.8 0.2	11.69 .21	34.8 2.6	3.37 .12	54.0 0.8
18.0	12.70 +.13	41.9 +2.3	59.94 +.16	20.7 −0.2	11.95 +.30	32.2 −2.6	3.51 +.16	53.2 0.8
28.0	12.85 .17	39.6 2.2	60.12 .19	20.4 0.2	12.29 .39	29.6 2.5	3.69 .19	52.4 0.8
Aug. 6.9	13.03 .20	37.4 2.0	60.32 .22	20.2 0.3	12.72 .47	27.1 2.4	3.90 .22	51.5 0.9
16.9	13.24 .23	35.5 1.8	60.55 .24	19.9 0.3	13.22 .54	24.7 2.2	4.14 .25	50.6 0.9
26.9	13.48 .25	33.9 1.4	60.81 .27	19.6 0.4	13.79 .60	22.5 2.0	4.40 .28	49.5 0.9
Sept. 5.9	13.74 +.27	32.7 +1.0	61.08 +.28	19.2 0.3	14.42 +.65	20.6 1.8	4.69 +.30	48.8 0.9
15.8	14.02 .29	31.9 0.5	61.38 .30	18.9 0.4	15.10 .70	18.9 1.5	5.00 .30	47.9 0.9
25.8	14.32 .30	31.6 +0.1	61.69 .31	18.5 0.4	15.82 .73	17.6 1.2	5.33 .34	47.0 0.9
Oct. 5.8	14.63 .32	31.8 0.4	62.01 .32	17.9 0.7	16.57 .76	16.6 0.8	5.68 .35	46.1 0.9
15.7	14.96 .32	32.5 1.0	62.34 .33	16.9 0.8	17.34 .77	15.9 0.5	6.04 .36	45.2 0.9
25.7	15.28 +.32	33.8 −1.4	62.68 +.33	16.8 0.8	18.11 +.77	15.6 −0.1	6.40 +.36	44.4 0.8
Nov. 4.7	15.57 .30	35.5 1.9	63.00 .33	14.2 0.8	18.87 .73	15.7 +0.3	6.76 .36	43.7 0.7
14.7	15.86 .29	37.6 2.3	63.33 .30	14.1 0.8	19.61 .70	16.3 0.7	7.12 .35	43.0 0.6
24.6	16.14 .27	40.1 2.7	63.64 .30	13.3 0.8	20.31 .65	17.2 1.1	7.46 .33	42.5 0.4
Dec. 4.6	16.39 .23	42.8 2.7	63.93 .27	12.6 0.7	20.94 .60	18.5 1.5	7.78 .32	42.2 0.2
14.6	16.62 +.19	45.7 [illegible]	64.18 +.24	12.0 0.5	21.49 +.51	20.3 +1.9	8.07 +.27	42.0 0.1
24.6	16.80 .16	48.7 3	64.40 .19	11.5 0.4	21.96 .40	22.3 2.1	8.32 .23	42.0 +0.1
34.5	16.96 +.11	51.6 −3.1	64.57 +.15	11.1 0.2	22.33 +.29	24.5 +2.2	8.53 +.18	42.1 +0.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Canis Minoris. (*Procyon.*) Right Ascension.	α Canis Minoris. (*Procyon.*) Declination *North.*	β Geminorum. (*Pollux.*) Right Ascension.	β Geminorum. (*Pollux.*) Declination *North.*	φ Geminorum. Right Ascension.	φ Geminorum. Declination *North.*	3 Ursæ Majoris (H.) Right Ascension.	3 Ursæ Majoris (H.) Declination *North.*
	h m 7 33	° ′ + 5 29	h m 7 39	° ′ +28 16	h m 7 47	° ′ +27 1	h m 8 2	° ′ +68 46
	s	″	s	″	s	″	s	″
(Dec. 30.5)	56.79 +.17	21.4 −1.4	3.32 +.22	29.2 −0.1	14.11 +.21	55.8 −0.1	39.62 +.44	32.7 +2.1
Jan. 9.5	56.94 .12	20.0 1.3	3.49 .15	29.3 +0.1	14.29 .16	55.8 +0.1	40.01 .32	34.9 2.5
19.5	57.04 .07	18.8 1.1	3.62 .09	29.6 0.3	14.42 .10	56.0 0.2	40.27 .20	37.3 2.4
29.5	57.08 +.02	17.8 0.9	3.68 +.04	29.9 0.4	14.50 +.05	56.2 0.4	40.40 +.07	39.8 2.5
Feb. 8.4	57.08 −.02	16.9 0.7	3.69 −.02	30.4 0.5	14.52 −.01	56.6 0.5	40.40 −.06	42.3 2.5
18.4	57.03 −.07	16.3 −0.6	3.64 −.07	31.0 +0.6	14.48 −.06	57.1 +0.5	40.27 −.18	44.8 +2.4
28.4	56.94 .11	15.8 0.4	3.55 .11	31.6 0.6	14.40 .10	57.7 0.6	40.04 .28	47.0 2.1
Mar. 10.3	56.82 .13	15.5 0.2	3.42 .14	32.1 0.5	14.27 .14	58.2 0.5	39.70 .37	49.0 1.8
20.3	56.68 .15	15.3 −0.1	3.26 .17	32.6 0.4	14.12 .16	58.7 0.5	39.29 .44	50.6 1.4
30.3	56.52 .16	15.2 0.0	3.09 .18	33.0 0.4	13.96 .17	59.2 0.4	38.82 .48	51.7 0.9
Apr. 9.3	56.36 −.16	15.3 +0.1	2.91 −.18	33.3 +0.2	13.78 −.17	59.5 +0.3	38.33 −.50	52.4 +0.4
19.2	56.20 .15	15.5 0.2	2.73 .17	33.5 0.1	13.61 .17	59.7 +0.1	37.83 .49	52.6 0.0
29.2	56.06 .13	15.8 0.3	2.57 .15	33.6 +0.0	13.45 .15	59.8 0.0	37.35 .46	52.3 −0.5
May 9.2	55.94 .11	16.1 0.4	2.44 .12	33.5 −0.2	13.32 .12	59.8 −0.1	36.90 .41	51.5 1.0
19.2	55.85 .08	16.6 0.5	2.33 .09	33.2 0.3	13.21 .09	59.7 0.2	36.52 .35	50.3 1.4
29.1	55.79 −.04	17.1 +0.6	2.26 −.05	32.9 −0.4	13.13 −.06	59.4 −0.3	36.20 −.27	48.7 −1.8
June 8.1	55.76 −.01	17.7 0.6	2.23 −.01	32.5 0.4	13.10 −.02	59.1 0.4	35.97 .19	46.7 2.1
18.1	55.77 +.02	18.4 0.7	2.24 +.03	32.0 0.5	13.10 +.02	58.7 0.4	35.83 −.10	44.4 2.4
28.0	55.82 .06	19.0 0.7	2.29 .07	31.5 0.6	13.14 .06	58.2 0.5	35.78 .00	41.9 2.6
July 8.0	55.89 .09	19.8 0.7	2.37 .10	30.9 0.6	13.22 .10	57.7 0.5	35.83 +.09	39.3 2.7
18.0	56.00 +.12	20.4 +0.7	2.50 +.14	30.3 −0.6	13.33 +.13	57.1 −0.6	35.96 +.18	36.5 −2.8
28.0	56.14 .15	21.1 0.6	2.65 .17	29.6 0.7	13.48 .16	56.5 0.6	36.20 .27	33.7 2.8
Aug. 6.9	56.31 .18	21.6 0.5	2.84 .20	28.9 0.7	13.66 .19	55.8 0.7	36.52 .36	30.9 2.8
16.9	56.50 .20	22.1 0.4	3.06 .23	28.2 0.8	13.87 .22	55.1 0.7	36.92 .44	28.2 2.7
26.9	56.72 .23	22.4 +0.2	3.30 .26	27.4 0.8	14.11 .25	54.3 0.8	37.40 .52	25.6 2.5
Sept 5.9	56.96 +.25	22.5 0.0	3.58 +.28	26.6 −0.9	14.37 +.27	53.5 −0.9	37.94 +.58	23.2 −2.3
15.8	57.22 .27	22.3 −0.2	3.87 .30	25.7 0.9	14.65 .29	52.6 0.9	38.55 .64	20.9 2.1
25.8	57.49 .28	22.0 0.5	4.18 .32	24.8 0.9	14.96 .31	51.6 1.0	39.21 .69	19.0 1.8
Oct. 5.8	57.78 .29	21.4 0.7	4.50 .33	23.8 1.0	15.28 .33	50.6 1.0	39.92 .73	17.3 1.5
15.7	58.08 .30	20.5 1.0	4.84 .34	22.8 1.0	15.62 .34	49.6 1.0	40.66 .75	16.0 1.1
25.7	58.39 +.31	19.4 −1.2	5.19 +.35	21.9 −0.9	15.96 +.35	48.6 −1.0	41.43 +.77	15.1 −0.7
Nov 4.7	58.70 .31	18.1 1.4	5.55 .35	21.0 0.9	16.31 .35	47.5 1.0	42.20 .77	14.5 −0.3
14.7	59.01 .30	16.7 1.5	5.90 .34	20.1 0.8	16.66 .34	46.6 0.9	42.97 .75	14.5 +0.1
24.6	59.30 .29	15.1 1.6	6.23 .33	19.4 0.7	17.00 .33	45.7 0.8	43.71 .72	14.8 0.6
Dec. 4.6	59.58 .26	13.5 1.6	6.55 .30	18.8 0.5	17.32 .31	45.0 0.6	44.41 .67	15.6 1.0
14.6	59.83 +.23	11.9 −1.6	6.84 +.27	18.3 −0.3	17.62 +.28	44.5 −0.5	45.0[illegible] +.59	16.9 +1.4
24.6	60.04 .19	10.3 1.5	7.09 .23	18.1 −0.2	17.87 .24	44.1 0.3	45.59 .49	18.5 1.8
34.5	60.22 +.15	8.9 −1.4	7.30 +.20	18.0 0.0	18.08 +.19	43.9 0.1	46.04 +.40	20.5 +2.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date		15 Argûs (ρ). Right Ascension.	15 Argûs (ρ). Declination South.	φ Cancri. Right Ascension.	φ Cancri. Declination North.	ε Hydræ. Right Ascension.	ε Hydræ. Declination North.	ι Ursæ Majoris. Right Ascension.	ι Ursæ Majoris. Declination North.
		h m 8 3	° ′ −24 0	h m 8 26	° ′ +20 47	h m 8 41	° ′ + 6 47	h m 8 52	° ′ +48 26
		s	″	s	″	s	″	s	″
Dec.	30.6	11.35 +.18	22.1 −2.9	47.46 +.23	24.8 −0.6	21.31 +.23	46.7 −1.3	12.41 +.32	37.2 +0.7
Jan.	9.5	11.51 .13	25.1 2.9	47.67 .19	24.2 0.5	21.52 .19	45.3 1.4	12.72 .28	38.0 1.0
	19.5	11.62 .08	27.9 2.8	47.84 .14	23.8 0.3	21.68 .14	44.0 1.2	12.96 .22	39.2 1.3
	29.5	11.66 +.03	30.6 2.6	47.95 .09	23.6 0.1	21.80 .09	42.9 1.0	13.14 .14	40.5 1.5
Feb.	8.5	11.66 .03	33.0 2.3	48.00 +.03	23.6 +0.1	21.86 +.02	42.0 0.8	13.23 +.06	42.2 1.7
	18.4	11.62 −.07	35.2 −2.0	48.01 −.02	23.8 +0.3	21.88 −.02	41.3 0.6	13.26 −.02	43.9 +1.7
	28.4	11.52 .12	37.2 1.7	47.96 .07	24.2 0.4	21.85 .05	40.9 0.4	13.22 .07	45.6 1.7
Mar.	10.4	11.39 .14	38.6 1.3	47.88 .10	24.6 0.4	21.77 .09	40.6 −0.2	13.12 .13	47.3 1.6
	20.4	11.23 .17	39.7 1.0	47.76 .13	25.0 0.4	21.67 .11	40.5 0.0	12.95 .18	48.8 1.4
	30.3	11.05 .18	40.5 0.6	47.62 .15	25.4 0.4	21.54 .13	40.5 +0.1	12.75 .21	50.2 1.0
Apr.	9.3	10.87 .18	40.9 −0.2	47.46 −.16	25.9 +0.4	21.40 .14	40.7 +0.2	12.53 .23	51.2 +0.9
	19.3	10.68 .18	41.0 +0.1	47.30 .15	26.3 0.4	21.26 .14	40.9 0.3	12.29 .24	52.0 0.6
	29.3	10.51 .17	40.7 0.5	47.15 .14	26.6 0.3	21.12 .13	41.2 0.3	12.06 .23	52.5 +0.3
May	9.2	10.35 .15	40.1 0.8	47.02 .13	26.8 0.2	20.98 .12	41.6 0.4	11.83 .21	52.6 0.1
	19.2	10.22 .12	39.2 1.1	46.90 .11	27.0 +0.1	20.87 .10	42.0 0.4	11.63 .19	52.3 0.4
	29.2	10.11 −.09	37.8 +1.4	46.80 −.08	27.1 0.0	20.78 .08	42.5 +0.5	11.46 −.16	51.7 0.7
June	8.1	10.03 .06	36.3 1.6	46.74 .04	27.0 0.0	20.71 .05	43.0 0.5	11.32 .12	50.8 1.0
	18.1	9.98 −.02	34.6 1.8	46.72 .01	27.0 0.1	20.67 .02	43.5 0.5	11.22 .07	49.6 1.3
	28.1	9.97 .00	32.7 2.0	46.72 +.02	26.9 0.2	20.66 +.01	44.0 0.5	11.17 −.03	48.2 1.5
July	8.1	10.00 +.04	30.6 2.1	46.76 .06	26.6 0.2	20.68 .05	44.6 0.5	11.17 +.02	46.5 1.7
	18.0	10.05 +.08	28.5 +2.1	46.83 +.09	26.4 −0.3	20.73 +.06	45.0 +0.5	11.21 +.06	44.7 1.9
	28.0	10.15 .11	26.4 2.1	46.93 .12	26.0 0.4	20.81 .09	45.5 0.4	11.29 .11	42.7 2.0
Aug.	7.0	10.27 .14	24.4 1.9	47.06 .15	25.5 0.5	20.92 .12	45.8 0.3	11.42 .15	40.6 2.1
	17.0	10.43 .17	22.5 1.7	47.22 .18	25.0 0.6	21.05 .15	46.0 +0.1	11.60 .19	38.5 2.1
	26.9	10.62 .20	20.9 1.4	47.41 .20	24.3 0.7	21.22 .18	46.1 0.0	11.81 .23	36.3 2.1
Sept.	5.9	10.83 +.23	19.6 +1.1	47.62 +.23	23.5 −0.8	21.40 +.20	46.0 0.2	12.07 +.27	34.2 2.0
	15.9	11.08 .26	18.6 0.7	47.87 .25	22.6 1.0	21.62 .23	45.6 0.4	12.36 .31	31.9 2.2
	25.8	11.35 .28	18.2 +0.3	48.13 .28	21.6 1.1	21.86 .25	45.2 0.7	12.70 .35	29.8 2.1
Oct.	5.8	11.64 .30	18.1 −0.2	48.42 .30	20.4 1.2	22.12 .27	44.3 0.9	13.06 .38	27.7 2.0
	15.8	11.94 .31	18.5 0.7	48.73 .32	19.2 1.3	22.41 .29	43.2 1.1	13.46 .41	25.9 1.8
	25.8	12.26 +.32	19.5 1.2	49.06 +.33	17.9 1.3	22.71 +.31	42.0 1.4	13.88 +.43	24.2 −1.6
Nov.	4.7	12.59 .32	20.9 1.6	49.39 .34	16.5 1.4	23.03 .32	40.5 1.5	14.32 .45	22.7 1.3
	14.7	12.91 .32	22.8 2.0	49.73 .34	15.1 1.4	23.35 .32	38.9 1.7	14.78 .46	21.5 1.0
	24.7	13.23 .32	25.0 2.4	50.08 .33	13.8 1.3	23.67 .32	37.2 1.7	15.24 .45	20.6 0.7
Dec.	4.7	13.55 .28	27.6 2.7	50.40 .30	12.5 1.2	23.98 .30	35.4 1.8	15.68 .44	20.1 0.3
	14.6	13.79 +.25	30.4 −2.8	50.71 +.29	11.4 −1.0	24.28 +.28	33.6 −1.7	16.10 +.41	20.0 +0.1
	24.6	14.02 .21	33.3 2.9	50.99 .26	10.3 0.8	24.55 .25	32.0 1.6	16.49 .36	20.2 0.4
	34.6	14.19 +.17	36.3 −2.9	51.23 +.22	9.7 0.5	24.77 +.22	30.4 −1.3	16.83 +.31	20.8 +0.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	σ² Ursæ Majoris. Right Ascension.	σ² Ursæ Majoris. Declination North.	κ Cancri. Right Ascension.	κ Cancri. Declination North.	ι Argûs. Right Ascension.	ι Argûs. Declination South.	1 Draconis (H.) Right Ascension.	1 Draconis (H.) Declination North.
	h m 9 1	° ′ +67 32	h m 9 2	° ′ +11 4	h m 9 14	° ′ −58 50	h m 9 22	° ′ +81 46
	s	″	s	″	s	″	s	″
(Dec. 30.6)	24.83 +.54	59.0 +1.4	12.13 +.26	55.0 −1.4	21.69 +.32	22.8 −3.6	36.05 +1.33	40.3 +1.8
Jan. 9.6	25.32 .44	60.7 1.8	12.37 .21	53.7 1.2	21.97 .25	26.5 3.8	37.27 1.20	42.3 2.2
19.6	25.70 .33	62.7 2.2	12.56 .16	52.6 1.0	22.18 .17	30.3 3.9	38.25 .83	44.7 2.5
29.5	25.97 .21	65.0 2.4	12.69 .11	51.7 0.8	22.30 +.08	34.2 3.9	38.94 .54	47.4 2.8
Feb. 8.5	26.12 +.08	67.5 2.5	12.78 .06	51.0 0.5	22.34 .00	38.1 3.8	39.32 + .23	50.3 2.9
18.5	26.14 −.04	70.1 +2.5	12.82 +.01	50.6 −0.3	22.30 −.08	41.7 −3.6	39.39 − .08	53.3 +3.0
28.4	26.04 .15	72.6 2.4	12.81 −.03	50.4 −0.1	22.18 .15	45.2 3.3	39.15 .38	56.2 2.8
Mar. 10.4	25.84 .25	74.9 2.2	12.75 .07	50.3 0.0	22.00 .21	48.3 3.0	38.62 .65	59.0 2.6
20.4	25.54 .33	77.0 1.9	12.66 .10	50.4 +0.1	21.76 .26	51.1 2.6	37.84 .88	61.4 2.3
30.4	25.18 .39	78.8 1.6	12.55 .12	50.6 0.2	21.47 .30	53.5 2.1	36.84 1.07	63.5 1.9
Apr. 9.3	24.76 −.43	80.2 +1.2	12.42 −.13	50.9 +0.3	21.15 −.33	55.4 −1.7	35.68 −1.22	65.2 +1.4
19.3	24.30 .45	81.1 0.7	12.28 .14	51.3 0.4	20.80 .35	56.8 1.2	34.40 1.31	66.3 0.9
29.3	23.84 .45	81.5 +0.2	12.14 .13	51.6 0.4	20.45 .36	57.8 0.7	33.06 1.34	66.9 +0.3
May 9.3	23.40 .43	81.5 −0.3	12.01 .12	52.0 0.4	20.09 .35	58.2 −0.2	31.70 1.32	66.9 −0.3
19.2	22.98 .40	80.9 0.8	11.89 .11	52.4 0.4	19.75 .34	58.1 +0.4	30.39 1.26	66.4 0.8
29.2	22.60 −.35	80.0 −1.2	11.79 −.09	52.8 +0.4	19.42 −.31	57.5 +0.9	29.17 −1.16	65.3 −1.4
June 8.2	22.28 .28	78.5 1.6	11.72 .06	53.2 0.4	19.12 .28	56.4 1.3	28.06 1.02	63.6 1.9
18.1	22.03 .21	76.7 2.0	11.66 .04	53.5 0.3	18.85 .24	54.8 1.7	27.12 .85	61.6 2.3
28.1	21.86 .13	74.5 2.3	11.64 −.01	53.9 0.3	18.63 .20	52.9 2.1	26.36 .66	59.1 2.7
July 8.1	21.76 −.05	72.1 2.6	11.64 +.02	54.1 0.2	18.45 .15	50.6 2.5	25.80 .45	56.3 3.0
18.1	21.75 +.03	69.4 −2.8	11.68 +.05	54.4 +0.2	18.33 −.09	47.9 +2.7	25.46 − .23	53.2 −3.2
28.0	21.82 .11	66.5 2.9	11.74 .07	54.5 +0.1	18.27 −.03	45.1 2.9	25.34 − .01	49.9 3.4
Aug. 7.0	21.97 .19	63.6 3.0	11.83 .10	54.5 0.0	18.27 +.03	42.2 2.9	25.45 + .22	46.4 3.5
17.0	22.20 .27	60.6 3.0	11.95 .13	54.4 −0.2	18.33 .10	39.3 2.9	25.78 .45	42.9 3.5
27.0	22.51 .35	57.6 3.0	12.09 .16	54.2 0.3	18.46 .17	36.4 2.7	26.34 .67	39.4 3.4
Sept. 5.9	22.89 +.43	54.6 −2.9	12.27 +.19	53.8 −0.5	18.66 +.23	33.8 +2.5	27.12 + .87	36.0 −3.3
15.9	23.35 .49	51.8 2.7	12.47 .22	53.2 0.7	18.93 .30	31.5 2.1	28.09 1.07	32.8 3.2
25.9	23.87 .55	49.1 2.5	12.70 .24	52.4 0.9	19.26 .36	29.5 1.7	29.26 1.25	29.7 2.9
Oct. 5.8	24.45 .61	46.7 2.3	12.95 .27	51.4 1.1	19.64 .41	28.1 1.1	30 60 1.42	26.9 2.6
15.8	25.08 .66	44.6 2.0	13.23 .29	50.2 1.3	20.07 .45	27.2 +0.6	32.08 1.55	24.5 2.2
25.8	25.76 +.69	42.8 −1.6	13.53 +.31	48.8 −1.5	20.55 +.49	27.0 −0.1	33.70 +1.66	22.5 −1.8
Nov. 4.8	26.47 .72	41.3 1.2	13.84 .32	47.3 1.6	21.05 .50	27.3 0.7	35 40 1.74	20.9 1.3
14.7	27.20 .73	40.3 0.8	14.17 .33	45.6 1.7	21.56 .51	28.4 1.4	37.16 1.77	19.8 0.8
24.7	27.93 .72	39.8 −0.3	14.51 .33	43.9 1.7	22.06 .49	30.0 2.0	38.94 1.77	19.3 −0.2
Dec. 4.7	28.64 .69	39.8 +0.2	14.83 .32	42.1 1.7	22.54 .46	32.3 2.5	40.69 1.71	19.3 +0.3
14.7	29.32 +.65	40.2 +0.7	15.14 +.30	40.4 −1.6	22.99 +.42	35.1 −3.0	42.36 +1.60	20.0 +0.9
24.6	29.93 .58	41.2 1.2	15.43 .27	38.9 1.5	23.39 .36	38.3 3.4	43.89 1.44	21.1 1.4
34.6	30.47 +.50	42.6 +1.7	15.69 +.24	37.4 −1.3	23.72 +.30	41.8 −3.7	45.24 +1.24	22.8 +2.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date		α Hydræ Right Ascension	α Hydræ Declination South	d Ursæ Majoris Right Ascension	d Ursæ Majoris Declination North	θ Ursæ Majoris Right Ascension	θ Ursæ Majoris Declination North	ε Leonis Right Ascension	ε Leonis Declination North
		h m 9 22	° ′ −8 12	h m 9 25	° ′ +70 16	h m 9 25	° ′ +52 8	h m 9 40	° ′ +24 14
		s	″	s	″	s	″	s	″
Dec	30.6	33.26 +.03	43.3 −0.4	27.67 +.49	45.1 +1.3	61.12 +.40	36.2 +0.3	2.35 +.30	46.6 −0.9
Jan	9.6	33.30 .01	45.5 0.3	28.26 .33	46.6 1.8	61.48 .31	36.9 0.9	2.63 .28	45.8 0.6
	19.6	33.60 .17	47.8 0.1	28.74 .40	48.6 2.1	61.79 .26	38.0 1.3	2.87 .21	45.3 0.3
	29.5	33.84 .12	49.9 0.0	29.09 .40	50.9 2.4	62.01 .19	39.5 1.6	3.06 .18	45.1 0.0
Feb	8.5	33.93 .07	51.8 1.7	29.31 .13	53.4 2.6	62.17 .11	41.2 1.8	3.19 .11	45.2 +0.1
	18.5	33.98 +.02	53.4 −1.5	29.30 +.02	56.1 +2.7	62.24 +.03	43.1 +1.9	3.27 +.05	45.5 +0.4
	28.4	33.98 .02	54.8 1.2	29.33 −.12	58.8 2.6	62.23 −.04	45.1 2.0	3.30 .00	46.1 0.6
Mar	10.4	33.94 .06	55.9 1.0	29.15 .23	61.3 2.5	62.16 .11	47.0 1.9	3.28 .04	46.8 0.7
	20.4	33.86 .09	56.7 0.7	28.86 .33	63.7 2.2	62.02 .16	48.9 1.8	3.21 .08	47.6 0.8
	30.4	33.76 .11	57.4 0.5	28.48 .42	65.7 1.8	61.84 .20	50.6 1.6	3.12 .11	48.4 0.8
Apr	9.3	33.64 −.13	57.7 −0.1	28.03 −.47	67.4 +1.4	61.61 .23	52.0 +1.3	3.00 .13	49.2 +0.8
	19.3	33.50 .14	57.8 0.0	27.53 .52	68.6 1.0	61.37 .25	53.1 1.0	2.86 .14	50.0 0.7
	29.3	33.37 .13	57.8 +0.1	27.01 .52	69.3 +0.4	61.11 .25	53.9 0.6	2.71 .14	50.6 0.6
May	9.3	33.24 .13	57.5 0.4	26.48 .52	69.5 0.0	60.86 .25	54.3 +0.2	2.57 .14	51.2 0.5
	19.2	33.11 .12	57.0 0.6	25.98 .49	69.2 −0.4	60.62 .23	54.3 −0.2	2.44 .13	51.6 0.3
	29.2	33.00 −.10	56.4 +0.7	25.51 −.44	68.4 1.0	60.40 .20	53.9 −0.6	2.32 .11	51.9 +0.2
June	8.2	32.91 .08	55.6 0.9	25.10 .38	67.2 1.5	60.22 .17	53.1 0.9	2.21 .09	52.0 0.0
	18.1	32.84 .06	54.7 1.0	24.76 .31	65.5 1.9	60.07 .13	52.0 1.3	2.13 .07	52.0 0.1
	28.1	32.80 .03	53.6 1.1	24.49 .23	63.4 2.2	59.96 .09	50.6 1.6	2.08 .04	51.8 0.3
July	8.1	32.79 .00	52.6 1.1	24.30 .14	60.9 2.6	59.91 .04	48.9 1.8	2.05 .01	51.4 0.4
	18.1	32.79 +.02	51.4 +1.1	24.21 .05	58.2 2.8	59.94 +.01	47.0 2.0	2.05 +.02	50.9 −0.6
	28.0	32.82 .05	50.3 1.1	24.20 +.04	55.3 3.0	60.01 .05	44.8 2.0	2.08 .04	50.3 0.7
Aug	7.0	32.87 .07	49.2 1.0	24.29 .13	52.2 3.1	60.19 .10	42.5 2.4	2.14 .07	49.5 0.9
	17.0	32.96 .10	48.2 0.9	24.46 .22	49.1 3.1	60.38 .15	40.0 2.5	2.22 .10	48.6 1.0
	27.0	33.08 .13	47.4 0.7	24.73 .31	45.9 3.0	60.59 .20	37.5 2.5	2.34 .13	47.5 1.0
Sept	5.9	33.22 +.16	46.8 +0.5	25.09 +.40	42.7 3.0	60.90 +.24	34.9 −2.6	2.48 +.16	46.2 1.3
	15.9	33.40 .19	46.4 +0.2	25.53 .48	39.6 3.0	61.17 .28	32.3 2.6	2.66 .19	44.8 1.5
	25.9	33.60 .22	46.3 0.1	26.05 .56	36.6 3.0	61.47 .33	29.8 2.5	2.87 .23	43.3 1.6
Oct	5.8	33.84 .25	46.6 0.5	26.64 .63	33.7 2.8	61.82 .37	27.4 2.4	3.11 .26	41.6 1.7
	15.8	34.10 .27	47.2 0.8	27.30 .69	31.4 2	61.91 .41	25.0 2.2	3.39 .29	39.9 1.8
	25.8	34.33 +.29	48.2 1.2	28.02 +.74	29.1 2.2	62.24 +.44	22.9 −2.0	3.69 +.31	38.0 1.8
Nov	4.8	34.63 .31	49.6 1.5	28.79 .78	27.6 1.4	62.69 .46	21.0 1.7	4.01 .33	36.2 1.8
	14.7	35.02 .32	51.2 1.8	29.58 .80	26.3 1.1	63.16 .48	19.5 1.4	4.36 .35	34.3 1.8
	24.7	35.34 .33	53.1 2.0	30.40 .81	25.4 0.6	63.65 .48	18.3 1.0	4.71 .36	32.6 1.7
Dec	4.7	35.67 .32	55.3 2.2	31.20 .79	25.2 0.1	64.13 .47	17.4 0.6	5.07 .35	30.9 1.5
	14.7	35.98 +.30	57.6 2.3	31.97 +.76	25.4 +0.5	64.60 +.45	17.0 0.2	5.42 +.34	29.5 −1.3
	24.6	36.27 .28	59.9 2.4	32.68 .68	26.2	65.14 .41	17.1 +0.3	5.75 .30	28.2 1.1
	34.6	36.55 +.26	62.3 2.4	33.32 +.61	27.4 +1.5	65.43 +.38	17.5 +0.7	6.05 +.29	27.3 −0.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	μ Leonis. Right Ascension.	μ Leonis. Declination North.	α Leonis. (Regulus.) Right Ascension.	α Leonis. (Regulus.) Declination North.	32 Ursæ Majoris. Right Ascension.	32 Ursæ Majoris. Declination North.	γ¹ Leonis. Right Ascension.	γ¹ Leonis. Declination North.
	h m 9 46	° ′ +26 29	h m 10 2	° ′ +12 27	h m 10 10	° ′ +65 36	h m 10 14	° ′ +20 21
	s	″	s	″	s	″	s	″
(Dec. 30.6)	56.41 +.31	22.7 −0.8	54.95 +.30	68.0 −1.6	37.20 +.58	62.1 +0.7	19.44 +.31	36.5 −1.3
Jan. 9.6	56.70 .27	22.0 0.5	55.23 .26	66.5 1.4	37.76 .52	63.0 1.1	19.74 .28	35.3 1.0
19.6	56.95 .22	21.6 −0.2	55.47 .22	65.3 1.1	38.25 .44	64.3 1.6	20.01 .24	34.4 0.7
29.6	57.15 .17	21.5 +0.1	55.67 .17	64.3 0.8	38.64 .34	66.2 2.0	20.22 .19	33.9 0.4
Feb. 8.5	57.29 .12	21.7 0.3	55.82 .12	63.6 0.6	38.93 .23	68.4 2.3	20.39 .14	33.6 −0.1
18.5	57.38 +.06	22.2 +0.6	55.92 +.07	63.2 −0.3	39.11 +.12	70.8 +2.5	20.50 +.09	33.7 +0.2
28.5	57.42 +.01	22.9 0.7	55.96 +.02	63.0 −0.1	39.17 +.02	73.3 2.6	20.57 +.04	34.0 0.4
Mar. 10.5	57.40 −.04	23.7 0.9	55.97 −.02	63.0 +0.1	39.13 −.09	76.0 2.6	20.58 .00	34.4 0.6
20.4	57.34 .08	24.6 0.9	55.93 .05	63.2 0.3	38.99 .18	78.5 2.4	20.55 −.04	35.1 0.7
30.4	57.25 .11	25.5 0.9	55.86 .08	63.6 0.4	38.77 .26	80.8 2.2	20.49 .08	35.8 0.8
Apr. 9.4	57.13 −.13	26.5 +0.9	55.76 −.10	64.0 +0.5	38.47 −.32	82.8 +1.9	20.40 −.10	36.6 +0.8
19.3	56.99 .14	27.3 0.8	55.65 .12	64.5 0.5	38.12 .37	84.5 1.5	20.29 .12	37.4 0.8
29.3	56.84 .14	28.1 0.7	55.53 .12	65.1 0.5	37.74 .40	85.8 1.1	20.16 .12	38.2 0.7
May 9.3	56.70 .14	28.7 0.5	55.40 .12	65.6 0.5	37.33 .40	86.6 0.6	20.04 .12	38.9 0.6
19.3	56.56 .13	29.1 0.4	55.28 .12	66.1 0.5	36.92 .40	87.0 +0.1	19.91 .12	39.5 0.5
29.2	56.43 −.12	29.4 +0.2	55.17 −.10	66.6 +0.4	36.53 −.38	86.8 −0.4	19.79 −.11	39.9 +0.4
June 8.2	56.33 .10	29.5 0.0	55.08 .09	67.0 0.4	36.17 .35	86.2 0.9	19.69 .10	40.2 0.3
18.2	56.24 .07	29.4 −0.2	55.00 .07	67.4 0.3	35.84 .30	85.0 1.3	19.59 .08	40.4 +0.1
28.2	56.18 .05	29.1 0.3	54.93 .05	67.7 0.2	35.57 .25	83.5 1.7	19.52 .06	40.5 0.0
July 8.1	56.14 −.02	28.7 0.5	54.89 .03	67.9 +0.2	35.35 .19	81.5 2.1	19.47 .04	40.4 −0.2
18.1	56.14 +.01	28.1 −0.7	54.87 −.01	68.0 0.0	35.19 −.13	79.2 −2.4	19.44 −.01	40.1 −0.3
28.1	56.16 .03	27.3 0.9	54.88 +.02	68.0 −0.1	35.09 −.06	76.6 2.7	19.44 +.01	39.7 0.5
Aug. 7.0	56.20 .06	26.4 1.0	54.90 .04	67.8 0.2	35.06 +.01	73.8 2.9	19.46 .04	39.1 0.7
17.0	56.28 .09	25.3 1.2	54.97 .07	67.6 0.4	35.10 .08	70.8 3.1	19.51 .06	38.4 0.8
27.0	56.39 .13	24.1 1.3	55.05 .10	67.1 0.5	35.22 .15	67.6 3.2	19.59 .09	37.4 1.0
Sept. 6.0	56.53 +.16	22.7 −1.5	55.17 +.13	66.5 −0.7	35.40 +.22	64.3 −3.3	19.69 +.12	36.3 −1.2
15.9	56.71 .19	21.1 1.6	55.31 .16	65.7 0.9	35.66 .29	61.1 3.2	19.83 .15	35.0 1.4
25.9	56.91 .23	19.5 1.7	55.49 .19	64.6 1.1	35.99 .36	57.8 3.2	20.00 .19	33.6 1.6
Oct. 5.9	57.15 .26	17.7 1.8	55.70 .23	63.4 1.3	36.39 .43	54.7 3.0	20.21 .22	31.9 1.7
15.9	57.42 .29	15.8 1.9	55.94 .26	62.0 1.5	36.86 .50	51.8 2.8	20.45 .26	30.1 1.8
25.8	57.72 +.32	13.9 −1.9	56.21 +.28	60.4 −1.7	37.39 +.56	49.1 −2.5	20.73 +.29	28.2 −1.9
Nov. 4.8	58.05 .34	12.0 1.9	56.51 .31	58.6 1.8	37.98 .60	46.7 2.2	21.03 .31	26.2 2.0
14.8	58.40 .35	10.1 1.8	56.83 .33	56.7 1.9	38.60 .64	44.7 1.8	21.35 .33	24.2 2.0
24.7	58.76 .36	8.3 1.7	57.16 .34	54.8 2.0	39.26 .66	43.2 1.3	21.70 .35	22.2 1.9
Dec. 4.7	59.12 .36	6.6 1.5	57.50 .34	52.8 1.9	39.93 .67	42.1 0.8	22.05 .35	20.3 1.8
14.7	59.47 +.35	5.2 −1.3	57.83 +.33	50.9 −1.8	40.60 +.65	41.6 −0.2	22.40 +.35	18.5 −1.7
24.7	59.81 .32	4.0 1.0	58.16 .31	49.1 1.7	41.24 .62	41.6 +0.3	22.74 .33	16.9 1.5
34.6	60.12 +.29	3.1 −0.7	58.46 +.28	47.5 −1.6	41.83 +.57	42.1 +0.8	23.05 +.30	15.6 −1.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	φ Draconis (H.) Right Ascension.	φ Draconis (H.) Declination North.	ρ Leonis Right Ascension.	ρ Leonis Declination North.	φ Argûs Right Ascension.	φ Argûs Declination South.	l Leonis Right Ascension.	l Leonis Declination North.
	h m 10 26	° ′ +76 13	h m 10 27	° ′ + 9 49	h m 10 41	° ′ −59 8	h m 10 43	° ′ +11 4
	s	″	s	″	s	″	s	″
Dec 30.6	26.94 +.96	77.4 +2.8	24.90 +.31	65.2 −1.8	4.98 +.46	22.7 1.9	52.14 +.31	77.2 1.7
Jan 9.6	27.86 .87	78.5 1.6	25.19 .28	63.5 1.6	5.41 .40	25.8 3.3	52.45 .29	75.5 1.6
19.6	28.67 .76	80.1 1.9	25.45 .24	62.0 1.3	5.79 .36	29.2 3.6	52.72 .25	74.1 1.3
29.6	29.33 .58	82.2 2.3	25.67 .19	60.8 1.1	6.08 .28	32.9 3.7	52.95 .21	72.9 1.0
Feb 8.5	29.83 .41	84.6 2.6	25.84 .15	59.9 0.8	6.31 .16	36.7 3.8	53.14 .16	72.0 0.7
18.5	30.14 +.20	87.3 +2.8	25.96 +.10	59.3 −0.5	6.45 +.1	40.5 −3.8	53.28 +.11	71.4 0.4
28.5	30.27 +.06	90.2 2.9	26.03 .05	58.9 −0.3	6.52 +.03	44.2 3.7	53.37 .07	71.1 0.1
Mar 10.5	30.21 −.14	93.1 2.8	26.06 +.01	58.8 0.0	6.51 .4	47.8 3.5	53.41 +.02	71.0 0.0
20.4	29.98 .32	95.9 2.7	26.04 −.03	58.9 +0.2	6.44 .10	51.2 3.2	53.41 .00	71.2 +0.2
30.4	29.60 .46	98.5 2.4	26.00 .06	59.1 0.3	6.30 .16	54.3 2.9	53.38 .03	71.5 0.4
Apr 9.4	29.08 −.57	100.8 +2.1	25.92 −.08	59.4 +0.4	6.12 −.21	57.0 −2.5	53.32 .07	71.9 +0.5
19.4	28.45 .67	102.7 1.7	25.83 .10	59.9 0.5	5.89 .24	59.4 2.1	53.23 .09	72.5 0.6
29.3	27.74 .73	104.1 1.2	25.72 .11	60.4 0.5	5.63 .27	61.3 1.7	53.13 .10	73.1 0.6
May 9.3	26.99 .78	105.1 0.7	25.60 .11	61.0 0.5	5.34 .29	62.8 1.2	53.02 .11	73.7 0.6
19.3	26.20 .77	105.4 +0.1	25.49 .11	61.5 0.5	5.04 .30	63.9 0.7	52.91 .11	74.3 0.6
29.3	25.46 −.73	105.3 −0.4	25.38 −.10	62.1 +0.5	4.73 .31	64.3 −0.2	52.80 −.11	74.9 +0.6
June 8.2	24.73 .70	104.6 1.0	25.28 .09	62.6 0.5	4.42 .30	64.2 +0.1	52.70 .10	75.4 0.5
18.2	24.05 .64	103.3 1.5	25.19 .08	63.1 0.4	4.12 .29	63.7 0.8	52.61 .08	75.9 0.4
28.2	23.43 .56	101.6 1.9	25.12 .06	63.4 0.4	3.84 .27	62.7 1.2	52.53 .07	76.3 0.3
July 8.1	22.94 .46	99.4 2.3	25.06 .04	63.7 0.3	3.58 .24	61.3 1.6	52.47 .05	76.6 0.2
18.1	22.53 −.35	96.9 −2.7	25.03 −.02	64.0 +0.2	3.36 −.20	59.4 +2.0	52.42 −.04	76.7 +0.1
28.1	22.24 .24	94.0 3.0	25.02 .00	64.1 +0.1	3.18 .16	57.2 2.3	52.39 −.02	76.8 0.1
Aug 7.1	22.06 −.10	90.9 3.1	25.02 +.02	64.1 0.1	3.04 .11	54.8 2.6	52.39 .00	76.7 0.0
17.0	22.01 +.02	87.5 3.4	25.06 .05	63.9 0.1	2.96 .05	52.1 2.7	52.40 +.01	76.5 0.3
27.0	22.08 .16	84.0 3.5	25.12 .08	63.6 0.4	2.95 +.02	49.3 2.8	52.44 .06	76.1 0.5
Sept 6.0	22.29 +.27	80.4 3.6	25.20 +.11	63.1 −0.6	3.00 +.09	46.5 +2.7	52.52 +.09	75.5 −0.7
16.0	22.62 .40	76.8 3.6	25.32 .14	62.4 0.8	3.13 .16	43.9 2.5	52.62 .11	74.7 0.9
25.9	23.08 .50	73.3 3.5	25.48 .17	61.5 1.0	3.33 .24	41.5 2.3	52.76 .15	73.7 1.1
Oct 5.9	23.67 .65	69.9 3.3	25.66 .20	60.3 1.3	3.60 .30	39.4 1.9	52.93 .19	72.4 1.4
15.9	24.38 .76	66.7 3.0	25.88 .24	58.9 1.5	3.94 .37	37.7 1.4	53.14 .23	71.0 1.6
25.8	25.19 +.86	63.9 −2.7	26.14 +.27	57.4 −1.7	4.35 +.43	36.5 +0.9	53.38 +.26	69.3 1.8
Nov 4.8	26.10 .96	61.3 2.3	26.42 .30	55.6 1.9	4.81 .48	35.9 +0.3	53.65 .29	67.4 1.9
14.8	27.09 1.00	59.3 1.8	26.73 .32	53.7 2.0	5.31 .50	35.3 −0.3	53.95 .31	65.5 2.0
24.8	28.13 1.08	57.7 1.3	27.06 .33	51.7 2.0	5.84 .53	36.5 0.9	54.29 .33	63.4 2.1
Dec 4.7	29.21 1.08	56.6 0.8	27.40 .34	49.6 2.0	6.38 .55	37.8 1.5	54.63 .34	61.3 2.1
14.7	30.28 +1.06	56.1 −0.2	27.74 +.33	47.6 2.0	6.93 +.55	39.6 −2.1	54.97 +.34	59.2 2.0
24.7	31.33 1.03	56.3 +0.4	28.06 .32	[illegible] 1.9	7.47 [illegible]	[illegible] 2.6	55.29 .33	57.3 1.9
34.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.9 3.0	[illegible]	55.4 −1.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	λ Draconis. Right Ascension.	λ Draconis. Declination North.	σ Leonis. Right Ascension.	σ Leonis. Declination South.	β Leonis. Right Ascension.	β Leonis. Declination North.	γ Ursae Majoris. Right Ascension.	γ Ursae Majoris. Declination North.
	h m 11 25	° ′ +69 53	h m 11 31	° ′ −0 15	h m 11 43	° ′ +15 8	h m 11 48	° ′ +54 15
	s	″	s	″	s	″	s	″
Dec 30.7	20.54 +.73	33.8 −0.1	41.62 +.32	24.0 −2.2	49.56 +.34	42.1 −1.9	26.76 +.58	40.8 1.0
Jan 9.7	21.27 .67	35.9 +0.4	41.94 .30	26.1 2.1	49.89 .31	39.3 1.6	27.34 .35	40.1 −0.4
19.6	21.94 .60	36.6 1.0	42.24 .26	28.1 1.9	50.20 .28	37.8 1.3	27.69 .41	40.0 +0.1
29.6	22.54 .50	37.9 1.6	42.50 .22	29.9 1.7	50.48 .24	36.6 1.0	28.10 .36	40.5 0.8
Feb 8.6	23.04 .38	39.7 2.0	42.72 .18	31.5 1.3	50.72 .20	35.8 0.7	28.46 .30	41.5 1.5
18.5	23.42 +.26	42.0 +2.4	42.90 +.14	32.9 −1.1	50.92 +.15	35.3 −0.3	28.75 +.23	43.0 +1.7
28.5	23.68 .14	44.5 2.7	43.04 .11	33.9 0.9	51.07 .11	35.1 0.0	28.97 .16	44.9 2.0
Mar 10.5	23.82 +.01	47.3 2.8	43.13 .07	34.7 0.6	51.17 .08	35.3 +0.3	29.11 .11	47.1 2.3
20.5	23.83 −.09	50.1 2.8	43.18 +.03	35.3 0.4	51.24 .04	35.7 0.5	29.18 +.04	49.5 2.6
30.4	23.72 .16	53.0 2.7	43.19 .00	35.6 0.2	51.26 +.01	36.3 0.7	29.18 .03	52.0 2.5
Apr 9.4	23.52 −.26	55.6 +2.5	43.18 −.03	35.7 0.0	51.25 .02	37.1 +0.8	29.12 −.09	54.4 +2.4
19.4	23.21 .34	58.0 2.2	43.13 .04	35.6 +0.1	51.21 .05	37.9 0.9	29.00 .14	56.8 2.2
29.4	22.83 .41	60.1 1.9	43.07 .07	35.4 0.3	51.14 .07	38.9 0.9	28.84 .19	58.9 2.0
May 9.3	22.39 .46	61.5 1.4	42.99 .08	35.0 0.4	51.06 .09	39.8 0.9	28.64 .21	60.8 1.7
19.3	21.91 .49	63.0 0.9	42.90 .09	34.6 0.5	50.97 .09	40.7 0.8	28.42 .23	62.3 1.3
29.3	21.42 .50	63.7 +0.4	42.81 .09	34.1 +0.5	50.87 −.10	41.5 +0.8	28.18 −.24	63.4 +0.9
June 8.3	20.92 .50	63.9 −0.1	42.72 .09	33.5 0.6	50.77 .10	42.2 0.7	27.93 .25	64.1 +0.3
18.2	20.42 .48	63.6 0.6	42.62 .09	32.9 0.6	50.66 .10	42.8 0.5	27.68 .24	64.3 0.0
28.2	19.96 .43	62.7 1.1	42.53 .09	32.3 0.6	50.56 .10	43.2 0.4	27.44 .23	64.1 −0.4
July 8.2	19.55 .41	61.3 1.6	42.45 .08	31.7 0.6	50.47 .09	43.5 +0.2	27.21 .20	63.5 0.9
18.1	19.15 −.33	59.5 2.0	42.37 .07	31.1 +0.5	50.38 .08	43.7 0.0	27.01 .18	62.4 −1.5
28.1	18.82 .26	57.2 2.4	42.31 .05	30.6 0.5	50.32 .07	43.6 0.1	26.83 .16	60.9 1.7
Aug 7.1	18.56 .19	54.6 2.8	42.26 .03	30.2 0.4	50.25 .04	43.4 0.3	26.67 .11	59.0 2.1
17.1	18.37 .11	51.7 3.1	42.23 −.00	29.9 0.3	50.21 .01	43.0 0.4	26.56 .08	56.7 2.6
27.1	18.26 −.02	48.5 3.3	42.23 +.02	29.6 +0.1	50.20 .00	42.3 0.8	26.48 .03	54.0 2.7
Sept 6.0	18.24 +.06	45.0 3.5	42.25 +.06	29.5 0.1	50.20 +.04	41.5 −1.1	26.45 .02	51.4 −2.9
16.0	18.30 .15	41.5 3.6	42.31 .09	29.7 0.3	50.24 .08	40.4 1.3	26.47 +.07	48.3 3.1
26.0	18.45 .25	37.8 3.6	42.40 .12	30.1 0.5	50.32 .11	39.1 1.4	26.54 .13	45.1 3.3
Oct 5.9	18.70 .34	34.2 3.6	42.52 .16	30.7 0.8	50.43 .15	37.6 1.6	26.67 .19	41.7 3.4
15.9	19.04 .50	30.6 3.3	42.68 .18	31.6 1.0	50.58 .17	35.9 1.8	26.86 .25	38.4 3.4
25.9	19.47 +.50	27.2 −3.3	42.86 +.27	32.8 1.3	50.77 +.24	33.9 −2.0	27.11 +.31	35.0 3.3
Nov 4.8	19.97 .63	24.0 3.0	43.13 .28	34.2 1.6	51.01 .27	31.8 2.0	27.42 .34	31.9 3.0
14.8	20.60 .67	21.2 2.7	43.40 .31	35.9 1.8	51.28 .30	29.6 2.2	27.76 .38	28.7 2.9
24.8	21.27 .72	18.7 2.0	43.71 .32	37.5 2.0	51.58 .32	27.3 2.3	28.20 .41	25.9 2.6
Dec 4.8	21.99 .75	16.7 1.5	44.03 .34	39.9 2.2	51.90 .33	25.0 2.3	28.60 .47	23.4 2.0
14.7	22.74 +.76	15.2 −0.8	44.37 +.36	42.1 −2.2	52.24 +.34	22.7 −2.1	29.14 +.49	21.4 −1.8
24.7	23.50 .75	14.4 −0.3	44.73 .28	44.3 2.2	52.58 .34	20.6 2.0	29.63 .49	19.9 1.3
34.7	24.25 +.76	14.1 0.1	45.01 +.30	46.5 2.1	[illegible] +.34	18.7 1.8	30.12 +.50	18.9 −0.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	o Virginis. Right Ascension.	o Virginis. Declination North.	4 Draconis (H.) Right Ascension.	4 Draconis (H.) Declination North.	γ Corvi. Right Ascension.	γ Corvi. Declination South.	β Chamæleontis. Right Ascension.	β Chamæleontis. Declination South.
	h m 11 59	° ′ + 9 17	h m 12 7	° ′ +78 10	h m 12 10	° ′ −16 58	h m 12 12	° ′ −78 44
	s	″	s	″	s	″	s	″
(Dec. 30.7)	58.77 +.34	68.5 −2.1	26.51+1.18	53.8 −0.5	31.31 +.35	12.9 −2.3	17.64+1.24	9.9 −1.4
Jan. 9.7	59.10 .32	66.6 1.9	27.69 1.15	53.6 +0.1	31.65 .33	15.2 2.3	18.87 1.18	11.7 2.1
19.7	59.42 .30	64.8 1.6	28.81 1.08	54.0 0.8	31.97 .31	17.6 2.4	20.01 1.08	14.0 2.6
29.6	59.70 .27	63.4 1.3	29.85 .97	55.1 1.4	32.27 .28	19.9 2.3	21.03 .96	16.9 3.0
Feb. 8.6	59.95 .23	62.2 1.0	30.75 .83	56.7 1.9	32.52 .24	22.2 2.2	21.92 .81	20.1 3.3
18.6	60.16 +.19	61.4 −0.7	31.50+ .66	58.9 +2.4	32.74 +.20	24.3 −2.1	22.65+ .65	23.6 −3.6
28.6	60.32 .14	60.9 0.4	32.06 .47	61.5 2.7	32.92 .16	26.3 1.9	23.22 .48	27.3 3.8
Mar. 10.5	60.44 .10	60.6 −0.1	32.43 .27	64.3 2.9	33.05 .11	28.1 1.7	23.62 .32	31.1 3.9
20.5	60.52 .06	60.7 +0.2	32.59+ .06	67.3 3.0	33.14 .07	29.6 1.4	23.84+ .14	35.0 3.9
30.5	60.56 +.02	61.0 0.4	32.55− .13	70.3 3.0	33.20 .04	30.9 1.2	23.90− .02	38.8 3.8
Apr. 9.5	60.57 −.01	61.4 +0.5	32.32− .32	73.3 +2.9	33.22 +.01	32.0 −1.0	23.80− .18	42.5 −3.6
19.4	60.55 .03	62.0 0.7	31.91 .48	76.0 2.6	33.21 −.02	32.8 0.7	23.54 .33	46.0 3.4
29.4	60.50 .05	62.8 0.7	31.35 .62	78.5 2.3	33.18 .04	33.4 0.5	23.14 .47	49.3 3.1
May 9.4	60.44 .07	63.5 0.8	30.65 .74	80.6 1.9	33.13 .06	33.8 0.3	22.60 .59	52.2 2.7
19.3	60.36 .08	64.3 0.8	29.86 .83	82.2 1.4	33.06 .07	34.0 −0.1	21.96 .70	54.6 2.3
29.3	60.27 −.09	65.1 +0.7	28.99− .89	83.3 +0.9	32.97 −.08	34.0 +0.1	21.21− .79	56.7 −1.8
June 8.3	60.18 .09	65.8 0.7	28.07 .92	83.9 +0.3	32.88 .09	33.8 0.3	20.38 .85	58.3 1.3
18.3	60.08 .10	66.4 0.6	27.14 .92	84.0 −0.2	32.78 .10	33.4 0.5	19.50 .90	59.3 0.8
28.2	59.98 .10	67.0 0.5	26.22 .91	83.5 0.8	32.68 .10	32.8 0.6	18.58 .92	59.8 −0.2
July 8.2	59.89 .09	67.5 0.4	25.33 .86	82.4 1.3	32.58 .10	32.1 0.8	17.65 .92	59.7 +0.3
18.2	59.80 −.08	67.8 +0.3	24.50− .80	80.8 −1.8	32.48 −.09	31.3 +0.9	16.74− .88	59.1 +0.9
28.1	59.72 .07	68.0 +0.1	23.73 .72	78.8 2.3	32.39 .09	30.4 1.0	15.88 .82	57.9 1.4
Aug. 7.1	59.65 .06	68.1 0.0	23.06 .62	76.3 2.7	32.31 .08	29.4 1.0	15.10 .73	56.3 1.9
17.1	59.60 .04	67.9 −0.2	22.50 .51	73.4 3.1	32.24 .06	28.4 1.0	14.42 .62	54.2 2.3
27.1	59.57 −.02	67.7 0.4	22.05 .38	70.2 3.3	32.20 −.03	27.4 1.0	13.88 .46	51.7 2.6
Sept. 6.0	59.57 +.01	67.2 −0.6	21.74− .24	66.7 −3.6	32.18 .00	26.4 +0.9	13.51− .29	49.0 +2.8
16.0	59.59 .04	66.4 0.8	21.57 − .09	63.0 3.7	32.19 +.03	25.6 0.7	13.32− .09	46.1 2.9
26.0	59.65 .08	65.5 1.1	21.55+ .06	59.2 3.8	32.24 .07	25.0 0.5	13.32+ .11	43.1 3.0
Oct. 6.0	59.75 .12	64.3 1.3	21.70 .23	55.4 3.8	32.33 .11	24.6 +0.3	13.54 .32	40.1 2.9
15.9	59.88 .16	62.9 1.5	22.00 .39	51.5 3.8	32.46 .16	24.5 0.0	13.97 .53	37.3 2.7
25.9	60.06 +.20	61.2 −1.8	22.47+ .54	47.8 −3.6	32.64 +.20	24.7 −0.4	14.60+ .73	34.8 +2.3
Nov 4.9	60.27 .24	59.4 2.0	23.10 .70	44.3 3.4	32.86 .24	25.2 0.7	15.42 .90	32.7 1.9
14.8	60.53 .27	57.3 2.1	23.87 .85	41.1 3.0	33.12 .28	26.1 1.1	16.41 1.05	31.0 1.4
24.8	60.82 .30	55.1 2.2	24.79 .97	38.3 2.6	33.42 .31	27.3 1.4	17.53 1.17	29.9 0.8
Dec 4.8	61.13 .32	52.9 2.2	25.81 1.07	35.9 2.2	33.75 .33	28.9 1.7	18.74 1.25	29.4 +0.2
14.8	61.47 +.34	50.6 −2.2	26.92+1.14	34.1 −1.6	34.09 +.35	30.7 −2.0	20.02+1.28	29.6 −0.3
24.7	61.81 .34	48.4 2.1	28.09 1.17	32.8 1.0	34.44 .35	32.8 2.2	21.31 1.27	30.4 1.2
34.7	62.15 +.33	46.4 −2.0	29.27+1.19	32.2 −0.4	34.79 +.34	35.1 − 2.3	22.57+1.23	31.8 −1.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	η Virginis. Right Ascension.	η Virginis. Declination South.	α¹ Crucis. Right Ascension.	α¹ Crucis. Declination South.	β Corvi. Right Ascension.	β Corvi. Declination South.	κ Draconis. Right Ascension.	κ Draconis. Declination North.
	h m 12 14	° ′ −0 5	h m 12 20	° ′ 62 31	h m 12 28	° ′ −22 49	h m 12 29	° ′ +70 20
	s	″	s	″	s	″	s	″
Dec. 30.7	39.05 +.34	46.8 −2.0	52.32 +.40	29.7 −1.7	59.18 +.37	37.0 2.2	7.39 +.77	56.0 −1.1
Jan. 9.7	39.39 .30	48.9 2.1	52.72 .37	31.7 2.2	59.54 .35	39.2 2.3	8.05 .72	55.3 0.4
19.7	39.70 .30	51.0 1.9	53.47 .35	34.2 2.6	59.88 .33	41.6 2.4	8.79 .71	55.3 +0.3
29.6	39.99 .27	52.8 1.7	53.98 .48	37.0 3.0	60.19 .30	44.0 2.4	9.48 .66	55.9 0.9
Feb. 8.6	40.24 .24	54.4 1.5	54.42 .41	40.2 3.3	60.46 .26	46.4 2.4	10.10 .58	57.0 1.5
18.6	40.46 +.20	55.7 −1.2	54.80 +.34	43.6 −3.5	60.70 +.22	48.8 −2.3	10.63 +.48	58.8 +2.0
28.6	40.64 .16	56.8 0.9	55.10 .27	47.1 3.6	60.90 .18	51.0 2.1	11.05 .36	61.0 2.4
Mar. 10.5	40.78 .11	57.6 0.7	55.33 .19	50.7 3.6	61.06 .14	53.0 1.9	11.35 .24	63.6 2.7
20.5	40.87 .08	58.1 0.4	55.48 .10	54.3 3.5	61.18 .10	54.9 1.7	11.53 +.11	66.4 2.9
30.5	40.93 .04	58.4 −0.1	55.56 +.03	57.7 3.4	61.25 .06	56.5 1.5	11.60 .00	69.3 3.0
Apr. 9.5	40.95 +.01	58.5 0.0	55.57 −.04	61.0 −3.2	61.29 +.01	57.9 1.3	11.54 −.11	72.3 +3.0
19.4	40.95 .00	58.4 +0.2	55.52 .08	64.1 2.9	61.30 .02	59.1 1.1	11.37 .22	75.1 2.8
29.4	40.92 .04	58.1 0.3	55.41 .11	66.9 2.6	61.29 .05	60.0 0.8	11.10 .31	77.8 2.5
May 9.4	40.87 .06	57.7 0.4	55.25 .19	69.3 2.1	61.25 .06	60.7 0.6	10.76 .38	80.1 2.1
19.3	40.81 .07	57.2 0.5	55.04 .21	71.4 1.9	61.19 .07	61.2 0.4	10.34 .44	82.0 1.7
29.3	40.73 .08	56.7 +0.6	54.80 .26	73.0 1.4	61.12 −.08	61.5 −0.1	9.88 −.48	83.5 +1.2
June 8.3	40.64 .09	56.1 0.6	54.52 .29	74.2 1.1	61.03 .09	61.5 +0.1	9.37 .52	84.5 0.7
18.3	40.55 .09	55.5 0.6	54.21 .31	75.0 +0.?	60.93 .10	61.3 0.3	8.85 .52	85.0 +0.?
28.2	40.46 .09	54.9 0.6	53.89 .32	75.2 0.?	60.82 .11	60.9 0.4	8.32 .52	84.9 −0.3
July 8.2	40.37 .09	54.3 0.6	53.56 .33	74.9 +0.?	60.71 .11	60.2 0.7	7.80 .51	84.3 0.8
18.2	40.28 .09	53.7 +0.6	53.24 −.32	74.2 +1.?	60.60 .11	59.4 +0.9	7.31 −.48	83.3 1.3
28.2	40.19 .08	53.2 0.5	52.93 .30	72.9 1.?	60.49 .10	58.5 1.0	6.84 .44	81.6 1.8
Aug. 7.1	40.11 .07	52.8 0.4	52.64 .27	71.3 1.?	60.39 .09	57.4 1.1	6.42 .39	79.6 2.3
17.1	40.05 .05	52.5 0.2	52.40 .22	69.3 2.?	60.31 .07	56.2 1.2	6.05 .34	77.1 2.7
27.1	40.01 −.03	52.3 +0.1	52.20 .16	67.0 2.4	60.24 .05	55.1 1.1	5.75 .25	74.2 3.0
Sept. 6.0	39.99 .00	52.2 −0.1	52.07 .11	64.3 +2.?	60.21 .00	53.9 +1.1	5.52 −.19	71.1 3.3
16.0	40.00 +.02	52.4 0.3	52.00 .02	61.3 [illegible]	60.21 +.02	52.8 1.0	5.37 .11	67.6 3.5
26.0	40.05 .07	52.8 0.5	52.03 +	58.2 [illegible]	60.23 .05	51.8 0.9	5.31 .02	64.0 3.7
Oct. 6.0	40.13 .1?	53.4 0.7	52.14 .16	55.5 [illegible]	60.31 .10	51.1 0.6	5.35 +.09	60.3 3.8
15.9	40.25 .14	54.3 1.0	52.34 .2?	54.1 [illegible]	60.42 .14	50.6 0.3	5.49 .19	56.5 3.8
25.9	40.42 +.18	55.4 1.3	52.63 +.34	52.0 +[illegible]	60.62 +.19	50.4 0.0	5.74 +.?	52.7 3.7
Nov. 4.9	[illegible]	56.8 1.5	[illegible]	[illegible]	60.8? .24	50.5 −0.1	6.09 .4?	49.0 3.5
14.9	[illegible]	58.5 1.8	[illegible]	[illegible]	61.06 .28	51.1 0.7	6.54 .5?	45.6 3.2
24.8	41.16 .29	60.3 2.0	[illegible]	[illegible]	61.35 .32	52.0 1.1	7.?? .??	42.5 2.9
Dec. 4.8	41.47 .32	62.4 2.1	54.55 .59	48.4 [illegible]	61.68 .36	53.2 1.4	7.72 .6?	39.7 2.5
14.8	41.79 +.33	64.6 2.2	55.15 +.61	48.9 [illegible]	62.05 +.38	54.8 1.7	8.41 +.7?	37.5 −2.0
24.7	42.13 .34	66.7 2.2	[illegible]	[illegible]	62.43 .39	56.7 2.0	9.14 .73	35.8 1.4
34.7	42.47 +.34	68.9 −2.2	[illegible]	51.? −	62.85 +.38	58.? −2.?	9.90 +.76	34.7 −0.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	32[a] Camelop. (H.) Right Ascension.	32 Camelop. (H.) Declination North.	α Can. Venaticorum. Right Ascension.	α Can. Venaticorum. Declination North.	θ Virginis. Right Ascension.	θ Virginis. Declination South.	α Virginis. (Spica.) Right Ascension.	α Virginis. (Spica.) Declination South.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	12 48	+83 57	12 51	+38 51	13 4	− 4 59	13 19	−10 37
	s	″	s	″	s	″	s	″
(Dec. 30.7)	25.64+2.15	55.2 −0.9	13.57 +.40	68.4 −1.9	37.51 +.34	27.1 −2.2	46.38 +.35	30.0 −2.0
Jan. 9.7	27.80 2.16	54.6 −0.3	13.96 .39	66.7 1.4	37.85 .34	29.2 2.1	46.72 .34	32.0 2.1
19.7	29.94 2.10	54.6 +0.4	14.35 .37	65.5 0.9	38.18 .32	31.3 2.0	47.06 .33	34.1 2.1
29.7	31.98 1.96	55.3 1.0	14.71 .35	64.9 −0.4	38.49 .30	33.2 1.9	47.39 .31	36.1 1.9
Feb. 8.6	33.85 1.75	56.6 1.6	15.04 .31	64.7 +0.1	38.78 .27	35.0 1.7	47.68 .28	38.0 1.8
18.6	35.48+1.48	58.5 +2.1	15.34 +.27	65.1 +0.6	39.04 +.24	36.5 −1.4	47.95 +.25	39.7 −1.6
28.6	36.80 1.15	60.9 2.5	15.58 .22	66.0 1.1	39.26 .20	37.8 1.2	48.19 .22	41.2 1.4
Mar. 10.6	37.77 .79	63.6 2.8	15.77 .17	67.3 1.5	39.44 .17	38.9 0.9	48.39 .18	42.6 1.2
20.5	38.37 .41	66.6 3.0	15.92 .12	69.0 1.8	39.59 .13	39.7 0.7	48.55 .14	43.6 1.0
30.5	38.58+ .02	69.6 3.1	16.01 .07	70.9 2.0	39.70 .09	40.2 0.4	48.68 .11	44.5 0.7
Apr. 9.5	38.41− .37	72.7 +3.0	16.06 +.02	72.9 +2.1	39.77 +.06	40.5 −0.2	48.77 +.08	45.1 −0.5
19.4	37.86 .73	75.7 2.9	16.06 −.02	75.1 2.1	39.82 .03	40.6 0.0	48.83 .05	45.6 0.3
29.4	36.96 1.05	78.4 2.6	16.02 .05	77.2 2.1	39.84 +.01	40.5 +0.1	48.87 +.02	45.8 −0.2
May 9.4	35.77 1.33	80.9 2.2	15.95 .08	79.3 2.0	39.83 −.02	40.3 0.3	48.88 .00	45.9 0.0
19.4	34.31 1.57	82.9 1.8	15.85 .11	81.2 1.8	39.80 .04	40.0 0.4	48.86 −.02	45.8 +0.1
29.3	32.65−1.75	84.4 +1.3	15.73 −.13	82.8 +1.5	39.76 −.05	39.6 +0.5	48.83 −.04	45.6 +0.2
June 8.3	30.83 1.87	85.4 0.7	15.59 .15	84.1 1.2	39.70 .07	39.1 0.5	48.77 .06	45.3 0.4
18.3	28.91 1.94	85.9 +0.2	15.44 .16	85.1 0.9	39.62 .08	38.5 0.6	48.70 .08	44.9 0.4
28.3	26.95 1.97	85.8 −0.4	15.28 .16	85.8 0.5	39.53 .09	38.0 0.6	48.62 .09	44.4 0.5
July 8.2	24.99 1.94	85.2 0.9	15.11 .16	86.1 +0.1	39.43 .10	37.4 0.6	48.52 .10	43.9 0.6
18.2	23.08−1.87	84.0 −1.4	14.95 −.16	86.1 −0.3	39.33 −.10	36.8 +0.6	48.42 −.11	43.3 +0.6
28.2	21.27 1.76	82.3 1.9	14.79 .15	85.6 0.7	39.23 .10	36.2 0.6	48.31 .11	42.7 0.6
Aug. 7.1	19.58 1.60	80.2 2.4	14.64 .14	84.8 1.0	39.13 .10	35.7 0.5	48.20 .11	42.0 0.6
17.1	18.07 1.41	77.6 2.8	14.51 .12	83.5 1.4	39.04 .09	35.2 0.4	48.10 .10	41.4 0.6
27.1	16.77 1.19	74.6 3.1	14.39 .10	82.0 1.7	38.95 .07	34.8 0.3	48.01 .08	40.8 0.5
Sept. 6.1	15.70− .94	71.3 −3.4	14.31 −.07	80.1 −2.0	38.89 −.05	34.5 +0.2	47.93 −.06	40.3 +0.5
16.0	14.88 .67	67.7 3.7	14.25 −.04	77.9 2.3	38.86 −.02	34.4 0.0	47.88 −.04	39.9 0.3
26.0	14.36 .38	63.9 3.8	14.23 .00	75.4 2.6	38.85 +.01	34.5 −0.2	47.86 .00	39.6 +0.2
Oct. 6.0	14.13− .07	60.1 3.9	14.26 +.05	72.7 2.8	38.88 .05	34.8 0.4	47.88 +.04	39.6 0.0
16.0	14.22+ .25	56.2 3.9	14.34 .10	69.7 3.0	38.96 .10	35.3 0.7	47.94 .08	39.7 −0.3
25.9	14.64+ .58	52.3 −3.8	14.46 +.15	66.7 −3.1	39.08 +.14	36.0 −0.9	48.05 +.13	40.2 −0.5
Nov. 4.9	15.38 .90	48.6 3.6	14.64 .21	63.5 3.2	39.24 .19	37.1 1.2	48.20 .18	40.8 0.8
14.9	16.44 1.21	45.1 3.3	14.88 .26	60.4 3.1	39.45 .23	38.4 1.4	48.40 .22	41.8 1.1
24.8	17.79 1.50	42.0 2.9	15.16 .30	57.3 3.0	39.70 .27	40.0 1.7	48.65 .26	43.0 1.4
Dec. 4.8	19.42 1.75	39.3 2.5	15.48 .34	54.3 2.8	39.99 .30	41.8 1.9	48.93 .30	44.6 1.6
14.8	21.27+1.94	37.1 −1.9	15.83 +.37	51.7 −2.5	40.30 +.32	43.7 −2.0	49.24 +.32	46.2 −1.8
24.8	23.29 2.07	35.4 1.3	16.21 .39	49.3 2.2	40.63 .34	45.8 2.1	49.57 .34	48.2 1.9
34.7	25.40+2.16	34.4 −0.7	16.61 +.40	47.3 −1.8	40.97 +.34	47.9 −2.2	49.92 +.36	50.1 −2.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	ζ Virginis. Right Ascension.	ζ Virginis. Declination South.	η Ursæ Majoris. Right Ascension.	η Ursæ Majoris. Declination North.	η Bootis. Right Ascension.	η Bootis. Declination North.	β Centauri. Right Ascension.	β Centauri. Declination South.
	h m 13 29	° ′ −0 4	h m 13 43	° ′ +49 48	h m 13 49	° ′ +18 54	h m 13 56	° ′ −59 52
	s	″	s	″	s	″	s	″
Dec 30.9	27.18 +.34	17.7 [illegible]	29.43 +.43	75.0 [illegible]	47.21 +.34	35.7 [illegible]	32.39 +.58	25.7 [illegible]
Jan 9.9	27.42 .34	19.8 [illegible]	[illegible] .44	73.0 1.7	47.55 .34	33.5 2.1	32.98 .59	26.4 1.0
19.7	27.75 .33	21.8 [illegible]	30.30 .44	71.6 [illegible]	47.89 .34	31.6 1.7	33.57 .58	27.7 1.3
29.7	28.07 .31	23.7 [illegible]	30.74 .42	70.7 [illegible]	48.22 .32	30.0 1.3	34.14 .56	29.4 [illegible]
Feb 8.7	28.37 [illegible]	25.3 [illegible]	31.15 .39	70.5 +0.1	48.54 .30	28.9 [illegible]	34.68 [illegible]	31.5 [illegible]
18.7	28.64 [illegible]	26.6 [illegible]	31.52 +.35	70.9 [illegible]	48.83 [illegible]	28.2 −0.3	35.19 [illegible]	33.9 −0.3
28.6	28.88 [illegible]	27.6 [illegible]	31.86 .31	71.8 1.0	49.09 [illegible]	27.9 −0.1	35.65 .43	36.5 [illegible]
Mar 10.6	[illegible]	28.4 [illegible]	32.14 [illegible]	73.3 1.7	49.31 [illegible]	28.0 +0.3	36.05 .37	39.4 [illegible]
20.6	[illegible]	28.9 [illegible]	32.37 [illegible]	75.2 [illegible]	49.50 .17	28.5 0.7	36.40 [illegible]	42.4 3.0
30.5	[illegible]	29.1 [illegible]	32.54 [illegible]	77.5 [illegible]	49.65 .13	29.4 1.0	36.68 [illegible]	45.4 3.0
Apr 9.5	[illegible]	29.1 [illegible]	[illegible]	80.0 [illegible]	49.76 +.10	30.5 +1.0	36.91 [illegible]	48.4 −3.0
19.5	[illegible]	[illegible]	[illegible]	82.7 [illegible]	49.84 [illegible]	31.8 1.4	37.07 .13	51.4 [illegible]
29.5	[illegible]	[illegible]	[illegible]	85.4 [illegible]	[illegible]	33.3 1.5	37.18 [illegible]	54.2 [illegible]
May 9.4	[illegible]	[illegible]	[illegible]	88.0 [illegible]	49.91 [illegible]	34.8 1.5	37.22 [illegible]	56.9 [illegible]
19.4	[illegible]	[illegible]	32.57 [illegible]	90.5 [illegible]	49.90 [illegible]	36.4 1.5	37.21 [illegible]	59.4 [illegible]
29.4	[illegible]	[illegible]	32.44 [illegible]	92.7 [illegible]	49.87 [illegible]	37.9 +1.4	37.14 [illegible]	61.6 [illegible]
June 8.3	[illegible]	[illegible]	[illegible]	94.6 [illegible]	49.81 [illegible]	39.2 1.3	37.02 .14	63.5 [illegible]
18.3	[illegible]	[illegible]	[illegible]	[illegible]	49.73 [illegible]	40.5 1.1	[illegible]	65.0 [illegible]
28.3	[illegible]	[illegible]	[illegible]	97.3 [illegible]	[illegible]	41.5 [illegible]	36.64 [illegible]	66.1 [illegible]
July 8.3	[illegible]	[illegible]	[illegible]	98.0 [illegible]	49.53 [illegible]	42.4 [illegible]	36.40 [illegible]	66.8 [illegible]
18.2	[illegible]	[illegible]	31.41 [illegible]	98.3 [illegible]	49.41 [illegible]	43.0 [illegible]	[illegible]	67.1 [illegible]
28.2	[illegible]	[illegible]	31.17 [illegible]	98.1 [illegible]	[illegible]	43.3 [illegible]	35.82 [illegible]	66.9 [illegible]
Aug 7.2	[illegible]	[illegible]	[illegible]	97.4 [illegible]	49.15 [illegible]	43.4 [illegible]	35.52 [illegible]	66.3 [illegible]
17.2	[illegible]	[illegible]	[illegible]	96.3 [illegible]	49.02 [illegible]	43.2 [illegible]	35.22 [illegible]	65.3 [illegible]
27.1	[illegible]	[illegible]	[illegible]	94.7 [illegible]	48.89 [illegible]	42.7 [illegible]	34.94 [illegible]	63.8 [illegible]
Sept 6.1	[illegible]	21.9 [illegible]	[illegible]	92.7 [illegible]	[illegible]	42.0 [illegible]	34.69 [illegible]	62.0 [illegible]
16.1	[illegible]	[illegible]	30.13 [illegible]	[illegible]	[illegible]	41.0 [illegible]	34.49 [illegible]	60.0 [illegible]
26.0	[illegible]	22.3 [illegible]	[illegible]	[illegible]	[illegible]	39.7 [illegible]	34.35 [illegible]	57.7 [illegible]
Oct 6.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38.2 [illegible]	[illegible]	55.3 [illegible]
16.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.2 [illegible]	34.30 [illegible]	52.8 [illegible]
26.0	[illegible]	24.7 [illegible]	[illegible]	[illegible]	[illegible]	34.1 [illegible]	34.41 [illegible]	50.5 [illegible]
Nov 4.9	[illegible]	[illegible]	[illegible]	74.5 [illegible]	[illegible]	31.8 [illegible]	34.60 [illegible]	48.3 [illegible]
14.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	34.89 [illegible]	46.4 [illegible]
24.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.7 [illegible]	35.26 [illegible]	44.9 [illegible]
Dec 4.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24.0 [illegible]	35.70 [illegible]	43.8 [illegible]
14.8	[illegible]	[illegible]	[illegible]	61.0 [illegible]	[illegible]	21.4 [illegible]	[illegible]	43.2 [illegible]
24.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.75 [illegible]	43.1 [illegible]
34.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	43.5 [illegible]

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Draconis. Right Ascension.	α Draconis. Declination North.	α Bootis. (*Arcturus.*) Right Ascension.	α Bootis. (*Arcturus.*) Declination North.	θ Bootis. Right Ascension.	θ Bootis. Declination North.	ρ Bootis. Right Ascension.	ρ Bootis. Declination North.
	h m 14 1	° ′ +64 51	h m 14 10	° ′ +19 42	h m 14 21	° ′ +52 18	h m 14 27	° ′ +30 48
	s	″	s	″	s	″	s	″
(Dec. 30.8)	36.12 +.56	39.5 −2.3	58.03 +.33	51.8 −2.5	41.46 +.41	73.3 −2.6	23.63 +.34	66.2 −2.6
Jan. 9.8	36.69 .59	37.5 1.7	58.36 .34	49.5 2.2	41.89 .43	70.9 2.1	23.97 .35	63.8 2.2
19.8	37.29 .60	36.1 1.0	58.70 .35	47.5 1.8	42.33 .45	69.1 1.5	24.33 .36	61.8 1.8
29.7	37.89 .59	35.4 −0.4	59.04 .33	45.8 1.4	42.78 .44	67.9 0.9	24.69 .35	60.2 1.3
Feb. 8.7	38.47 .56	35.4 +0.3	59.36 .31	44.6 1.0	43.22 .43	67.3 −0.3	25.03 .33	59.1 0.8
18.7	39.02 +.52	36.0 +0.9	59.65 +.29	43.8 −0.6	43.63 +.40	67.4 +0.4	25.36 +.31	58.6 −0.3
28.7	39.51 .45	37.3 1.5	59.93 .26	43.4 −0.2	44.01 .36	68.1 1.0	25.66 .28	58.6 +0.2
Mar. 10.6	39.92 .38	39.1 2.0	60.17 .22	43.5 +0.3	44.34 .31	69.4 1.5	25.92 .25	59.1 0.7
20.6	40.27 .30	41.3 2.4	60.37 .19	43.9 0.7	44.63 .26	71.1 2.0	26.15 .21	60.1 1.2
30.6	40.52 .21	43.9 2.7	60.54 .15	44.8 1.0	44.86 .20	73.4 2.4	26.35 .17	61.5 1.5
Apr. 9.5	40.69 +.12	46.8 +2.9	60.67 +.12	45.9 +1.2	45.03 +.14	75.9 +2.6	26.50 +.14	63.2 +1.8
19.5	40.77 +.03	49.8 3.0	60.77 .08	47.3 1.4	45.14 .08	78.6 2.8	26.62 .10	65.2 2.0
29.5	40.76 −.05	52.9 3.0	60.84 .05	48.8 1.5	45.19 +.03	81.5 2.8	26.70 .06	67.3 2.2
May 9.5	40.66 .13	55.8 2.9	60.87 +.02	50.4 1.6	45.19 −.03	84.3 2.8	26.74 +.03	69.5 2.2
19.4	40.50 .20	58.6 2.6	60.88 −.01	52.0 1.6	45.14 .08	87.0 2.6	26.75 −.01	71.7 2.1
29.4	40.27 −.26	61.1 +2.3	60.86 −.03	53.5 +1.5	45.03 −.12	89.6 +2.4	26.72 −.04	73.8 +2.0
June 8.4	39.97 .32	63.2 1.9	60.81 .06	55.0 1.4	44.89 .16	91.8 2.1	26.67 .07	75.7 1.8
18.4	39.63 .36	65.0 1.5	60.74 .08	56.3 1.2	44.71 .20	93.8 1.8	26.59 .09	77.5 1.6
28.3	39.26 .39	66.2 1.0	60.65 .10	57.5 1.0	44.49 .23	95.4 1.3	26.48 .12	78.9 1.3
July 8.3	38.85 .42	67.0 +0.5	60.54 .12	58.4 0.8	44.25 .25	96.5 0.9	26.35 .14	80.1 1.0
18.3	38.42 −.43	67.2 0.0	60.42 −.13	59.1 +0.6	43.99 −.27	97.1 +0.4	26.21 −.15	81.0 +0.7
28.2	37.98 .43	66.9 −0.5	60.29 .14	59.5 +0.3	43.72 .28	97.3 0.0	26.05 .16	81.5 +0.3
Aug. 7.2	37.55 .43	66.1 1.0	60.14 .14	59.6 0.0	43.44 .28	97.1 −0.5	25.88 .17	81.7 0.0
17.2	37.13 .41	64.8 1.5	60.00 .14	59.5 −0.3	43.16 .27	96.3 1.0	25.70 .17	81.5 −0.4
27.2	36.73 .38	63.1 2.0	59.86 .14	59.1 0.6	42.89 .26	95.0 1.5	25.53 .16	80.8 0.8
Sept. 6.1	36.37 −.34	60.8 −2.4	59.74 −.12	58.3 −0.9	42.63 −.24	93.3 −1.9	25.38 −.15	79.9 −1.2
16.1	36.05 .29	58.2 2.8	59.63 .10	57.3 1.2	42.41 .21	91.2 2.3	25.24 .13	78.6 1.5
26.1	35.79 .22	55.2 3.2	59.54 .07	56.0 1.5	42.22 .16	88.7 2.7	25.12 .10	76.9 1.8
Oct. 6.1	35.60 .15	51.9 3.4	59.50 −.03	54.4 1.8	42.08 .11	85.8 3.0	25.04 .06	74.9 2.1
16.0	35.49 −.07	48.3 3.6	59.49 +.02	52.5 2.0	41.99 −.05	82.7 3.3	25.00 −.02	72.6 2.4
26.0	35.47 +.02	44.6 −3.8	59.52 +.06	50.3 −2.2	41.97 +.01	79.3 −3.5	25.01 +.04	70.0 −2.7
Nov. 5.0	35.53 .11	40.7 3.8	59.61 .11	48.0 2.4	42.01 .08	75.7 3.6	25.07 .09	67.2 2.9
14.9	35.69 .22	36.9 3.8	59.74 .16	45.4 2.6	42.12 .15	72.0 3.7	25.18 .14	64.2 3.0
24.9	35.95 .30	33.2 3.6	59.92 .21	42.8 2.7	42.31 .22	68.4 3.6	25.35 .19	61.2 3.1
Dec. 4.9	36.30 .39	29.7 3.4	60.15 .25	40.0 2.7	42.56 .28	64.8 3.5	25.56 .24	58.1 3.1
14.9	36.73 +.46	26.5 −3.0	60.42 +.28	37.3 −2.7	42.87 +.34	61.5 −3.2	25.83 +.28	55.0 −2.9
24.8	37.22 .52	23.7 2.6	60.72 .31	34.6 2.6	43.23 .38	58.5 2.8	26.12 .31	52.2 2.7
34.8	37.77 +.57	21.4 −2.1	61.04 +.33	32.2 −2.4	43.64 +.40	55.8 −2.4	26.45 +.34	49.6 −2.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Ursæ Minoris. Right Ascension.	ζ Ursæ Minoris. Declination North.	α² Centauri (mean.) Right Ascension.	α² Centauri (mean.) Declination South.	ε Bootis. Right Ascension.	ε Bootis. Declination North.	α² Libræ. Right Ascension.	α² Libræ. Declination South.
	h m 14 27	° ′ +76 8	h m 14 32	° ′ −60 24	h m 14 40	° ′ +27 29	h m 14 45	° ′ −15 36
	s	″	s	″	s	″	s	″
(Dec. 30.8)	43.20 +.84	48.2 −2.3	35.32 +.58	29.5 0.0	29.41 +.32	73.0 −2.6	10.70 +.32	54.1 −1.9
Jan. 9.8	44.08 .90	46.2 1.8	35.90 .58	29.7 −0.3	29.74 .34	70.6 2.5	11.04 .32	55.7 1.6
19.8	45.02 .96	44.7 1.1	36.48 .59	30.4 1.0	30.08 .34	68.5 1.9	11.36 .34	57.3 1.6
29.7	45.99 .97	43.9 −0.3	37.07 .58	31.6 1.4	30.43 .34	66.8 1.4	11.72 .34	58.9 1.6
Feb. 8.7	46.96 .93	43.8 +0.3	37.64 .55	33.2 1.8	30.77 .33	65.6 0.9	12.06 .32	60.6 1.6
18.7	47.89 +.90	44.3 +0.9	38.18 +.50	35.1 −2.1	31.09 +.31	64.9 −0.4	12.38 +.31	62.1 −1.5
28.7	48.75 .81	45.5 1.5	38.68 .46	37.3 2.3	31.39 .29	64.7 +0.1	12.67 .28	63.5 1.3
Mar. 10.6	49.50 .70	47.3 2.0	39.13 .41	39.8 2.5	31.66 .26	65.1 0.6	12.94 .26	64.7 1.0
20.6	50.13 .56	49.5 2.5	39.54 .38	42.4 2.7	31.90 .22	65.9 1.0	13.18 .23	65.8 1.0
30.6	50.62 .41	52.2 2.8	39.89 .32	45.2 2.8	32.10 .18	67.1 1.4	13.40 .20	66.7 0.6
Apr. 9.6	50.95 +.25	55.2 +3.0	40.17 +.26	48.0 −2.8	32.27 +.15	68.6 +1.7	13.58 +.17	67.4 −0.6
19.5	51.12 +.09	58.3 3.1	40.41 .20	50.8 2.8	32.40 .11	70.4 1.9	13.73 .14	67.9 0.3
29.5	51.13 −.07	61.4 3.1	40.57 .14	53.6 2.7	32.49 .08	72.4 2.0	13.86 .11	68.3 0.3
May 9.5	50.98 .22	64.5 3.0	40.68 .06	56.3 2.6	32.55 .04	74.5 2.1	13.95 .08	68.5 0.0
19.4	50.69 .36	67.5 2.8	40.73 +.01	58.8 2.4	32.58 +.01	76.6 2.1	14.02 .05	68.6 −0.1
29.4	50.26 −.49	70.2 +2.5	40.72 .05	61.2 −2.2	32.57 −.02	78.7 +2.0	14.06 +.02	68.6 0.0
June 8.4	49.71 .60	72.5 2.1	40.64 .10	63.2 1.9	32.54 .05	80.6 1.8	14.07 .00	68.5 +0.1
18.4	49.06 .69	74.4 1.7	40.51 .16	65.0 1.6	32.47 .08	82.4 1.6	14.05 −.03	68.4 0.2
28.3	48.32 .77	75.8 1.0	40.32 .21	66.4 1.3	32.38 .10	83.9 1.4	14.00 .06	68.1 0.3
July 8.3	47.52 .82	76.7 0.7	40.10 .25	67.5 0.9	32.27 .12	85.2 1.1	13.93 .08	67.8 0.3
18.3	46.67 −.88	77.2 +0.1	39.82 −.29	68.1 −0.4	32.13 −.14	86.1 +0.8	13.84 −.10	67.4 +0.4
28.3	45.80 .88	77.1 −0.4	39.52 .31	68.3 0.0	31.98 .16	86.7 0.5	13.73 .12	67.0 0.5
Aug. 7.2	44.92 .89	76.4 0.9	39.20 .33	68.1 +0.4	31.82 .16	87.0 +0.1	13.60 .13	66.5 0.5
17.2	44.05 .85	75.2 1.4	38.87 .33	67.4 0.9	31.65 .17	87.0 −0.2	13.46 .14	66.0 0.6
27.2	43.22 .80	73.6 1.9	38.54 .32	66.4 1.3	31.48 .18	86.6 0.6	13.33 .13	65.4 0.6
Sept. 6.2	42.44 −.74	71.4 −2.4	38.24 −.28	64.9 +1.6	31.32 −.15	85.8 −0.9	13.20 −.12	64.9 +0.6
16.1	41.74 .64	68.9 2.8	37.97 .24	63.2 1.9	31.18 .13	84.7 1.3	13.08 .10	64.4 0.5
26.1	41.12 .56	65.9 3.1	37.77 .18	61.3 2.1	31.06 .11	83.2 1.6	12.99 .07	63.9 0.4
Oct. 6.1	40.62 .44	62.6 3.4	37.62 .10	58.7 2.4	[illegible]	81.5 1.9	12.92 −.05	63.6 0.3
16.0	40.25 .30	[illegible] 3.6	37.56 .00	[illegible]	[illegible]	[illegible] 2.0	12.90 .00	63.4 +0.1
26.0	[illegible]	55.3 3.8	[illegible] +.07	[illegible]	[illegible]	[illegible]	[illegible]	63.3 −0.1
Nov. 5.0	[illegible]	[illegible]	[illegible]	51.6 [illegible]	[illegible]	[illegible]	[illegible]	63.5 0.3
15.0	[illegible]	[illegible]	[illegible] .18	[illegible]	[illegible]	[illegible]	13.12 .13	63.9 0.3
24.9	[illegible]	[illegible]	[illegible]	47.7 [illegible]	[illegible]	[illegible]	[illegible]	64.5 0.8
Dec. 4.9	[illegible]	[illegible]	[illegible]	[illegible]	31.42 [illegible]	[illegible]	13.52 [illegible]	65.4 1.0
14.9	[illegible]	[illegible]	[illegible]	[illegible]	31.67 [illegible]	[illegible]	[illegible]	66.5 −1.0
24.8	[illegible]	[illegible]	[illegible]	[illegible]	31.96 [illegible]	[illegible]	14.08 [illegible]	[illegible]
34.8	[illegible]	[illegible]	[illegible]	44.5 [illegible]	32.27 +.31	57.2 −2.5	14.40 +.33	67.5 −1.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Ursæ Minoris.		β Bootis.		β Libræ.		μ¹ Bootis.	
	Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *South.*	Right Ascension.	Declination *North.*
	h m 14 50	° ′ +74 33	h m 14 58	° ′ +40 47	h m 15 11	° ′ − 9 0	h m 15 20	° ′ +37 43
	s	″	s	″	s	″	s	″
(Dec. 30.8)	58.50 +.71	70.4 −2.6	3.77 +.33	28.3 −2.8	27.69 +.30	17.3 −1.6	35.62 +.31	59.8 −2.8
Jan. 9.8	59.26 .79	68.0 2.1	4.12 .36	25.7 2.4	28.00 .32	18.9 1.7	35.94 .33	57.1 2.5
19.8	60.08 .85	66.3 1.5	4.49 .37	23.5 2.0	28.33 .33	20.6 1.6	36.29 .35	54.8 2.1
29.8	60.95 .88	65.1 0.8	4.87 .38	21.8 1.4	28.66 .33	22.2 1.5	36.65 .36	52.9 1.6
Feb. 8.7	61.84 .87	64.6 −0.1	5.24 .37	20.7 0.8	28.99 .32	23.6 1.4	37.01 .36	51.6 1.1
18.7	62.69 +.84	64.9 +0.6	5.61 +.35	20.1 −0.2	29.31 +.31	25.0 −1.2	37.37 +.35	50.8 −0.5
28.7	63.50 .78	65.8 1.2	5.95 .33	20.2 +0.4	29.61 .29	26.1 1.0	37.71 .33	50.6 +0.1
Mar. 10.7	64.24 .68	67.3 1.8	6.26 .30	20.9 0.9	29.89 .27	27.1 0.8	38.02 .30	51.0 0.7
20.6	64.87 .58	69.3 2.3	6.54 .26	22.1 1.4	30.14 .24	27.8 0.6	38.31 .27	52.0 1.2
30.6	65.38 .45	71.8 2.7	6.78 .22	23.7 1.8	30.37 .22	28.2 0.4	38.56 .23	53.5 1.6
Apr. 9.6	65.76 +.31	74.6 +2.9	6.97 +.18	25.8 +2.2	30.57 +.19	28.5 −0.2	38.78 +.19	55.3 +2.0
19.5	65.99 .17	77.7 3.1	7.13 .13	28.1 2.4	30.74 .16	28.6 0.0	38.95 .16	57.5 2.3
29.5	66.09 +.02	80.9 3.2	7.24 .09	30.6 2.6	30.89 .13	28.5 +0.2	39.09 .12	60.0 2.5
May 9.5	66.04 −.12	84.1 3.1	7.30 +.04	33.3 2.6	31.00 .10	28.2 0.3	39.18 .08	62.6 2.6
19.5	65.86 .25	87.1 3.0	7.32 .00	35.9 2.6	31.09 .07	27.9 0.4	39.24 +.04	65.2 2.6
29.4	65.55 −.37	90.0 +2.7	7.31 −.03	38.5 +2.5	31.15 +.04	27.5 +0.4	39.25 .00	67.8 +2.5
June 8.4	65.12 .48	92.5 2.4	7.25 .07	40.9 2.3	31.18 +.02	27.0 0.5	39.23 −.04	70.3 2.4
18.4	64.59 .57	94.7 2.0	7.16 .11	43.1 2.0	31.18 −.01	26.5 0.5	39.17 .08	72.5 2.1
28.4	63.98 .65	96.5 1.5	7.04 .14	44.9 1.7	31.15 .04	26.0 0.5	39.07 .11	74.6 1.9
July 8.3	63.29 .71	97.8 1.0	6.89 .16	46.5 1.3	31.09 .07	25.4 0.5	38.94 .14	76.3 1.5
18.3	62.54 −.77	98.5 +0.5	6.71 −.19	47.6 +0.9	31.01 −.09	24.9 +0.5	38.79 −.17	77.6 +1.2
28.3	61.76 .79	98.8 0.0	6.51 .21	48.3 0.5	30.91 .11	24.4 0.5	38.61 .19	78.6 0.8
Aug. 7.3	60.96 .80	98.5 −0.5	6.30 .22	48.7 +0.1	30.79 .13	23.9 0.4	38.41 .21	79.2 +0.4
17.2	60.16 .79	97.7 1.1	6.08 .22	48.5 −0.3	30.65 .14	23.5 0.4	38.19 .21	79.4 0.0
27.2	59.38 .76	96.4 1.6	5.85 .22	48.0 0.8	30.51 .14	23.1 0.4	37.97 .22	79.1 −0.5
Sept 6.2	58.63 −.72	94.6 −2.0	5.64 −.21	47.0 −1.2	30.37 −.13	22.7 +0.3	37.76 −.21	78.4 −0.9
16.1	57.94 .66	92.3 2.5	5.44 .19	45.5 1.6	30.24 .12	22.5 0.2	37.56 .19	77.3 1.3
26.1	57.32 .57	89.6 2.9	5.26 .16	43.7 2.0	30.13 .09	22.3 +0.1	37.37 .17	75.7 1.7
Oct 6.1	56.80 .47	86.6 3.2	5.12 .12	41.5 2.4	30.05 .06	22.3 −0.1	37.22 .14	73.8 2.1
16.1	56.38 .35	83.2 3.5	5.02 .07	39.0 2.7	30.00 −.03	22.4 0.2	37.10 .09	71.5 2.5
26.0	56.09 −.22	79.6 −3.7	4.98 −.02	36.1 −3.0	30.00 +.02	22.7 −0.4	37.03 −.04	68.9 −2.8
Nov. 5.0	55.94 −.08	75.9 3.8	4.98 +.04	33.0 3.2	30.04 .07	23.3 0.6	37.02 +.01	66.0 3.0
15.0	55.94 +.07	72.0 3.9	5.05 .10	29.7 3.3	30.13 .12	24.0 0.8	37.05 .07	62.9 3.2
24.9	56.09 .22	68.2 3.7	5.18 .16	26.3 3.4	30.27 .17	25.0 1.0	37.15 .13	59.6 3.3
Dec. 4.9	56.39 .37	64.5 3.6	5.36 .21	22.9 3.4	30.47 .21	26.1 1.2	37.31 .18	56.3 3.3
14.9	56.84 +.51	61.1 −3.3	5.60 +.26	19.6 3.2	30.70 +.25	27.5 1.4	37.52 +.23	53.0 −3.2
24.9	57.42 .63	58.0 2.9	5.89 .31	16.5 3.0	30.97 .29	29.0 1.5	37.78 .28	49.9 3.0
34.8	58.11 +.73	55.3 −2.5	6.22 +.34	13.6 −2.7	31.27 +.32	30.5 −1.6	38.08 +.32	47.0 −2.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.		γ Ursæ Minoris. Right Ascension.	γ Ursæ Minoris. Declination North.	α Coronæ Borealis. Right Ascension.	α Coronæ Borealis. Declination North.	α Serpentis. Right Ascension.	α Serpentis. Declination North.	ε Serpentis. Right Ascension.	ε Serpentis. Declination North.
		h m 15 20	° ′ +72 11	h m 15 30	° ′ +27 3	h m 15 39	° ′ + 6 44	h m 15 45	° ′ + 4 46
		s	″	s	″	s	″	s	″
Dec.	30.9	51.40 +.58	38.7 -3.0	19.33 +.29	24.6 -2.8	11.41 +.28	47.4 -2.0	40.62 +.29	65.7 -2.1
Jan.	9.8	52.01 .63	36.0 2.6	19.63 .32	22.0 2.5	11.70 .30	45.4 2.0	40.91 .30	63.7 2.0
	19.8	52.70 .72	33.9 1.9	19.95 .32	19.7 2.1	12.01 .31	43.4 2.8	41.21 .31	61.8 1.8
	29.8	53.44 .76	32.3 1.8	20.28 .34	17.7 1.7	12.33 .30	41.6 1.4	41.52 .30	60.1 1.6
Feb.	8.8	54.21 .77	31.4 -0.6	20.62 .33	16.3 1.0	12.64 .32	40.2 1.3	41.84 .32	58.6 1.3
	18.7	54.98 +.76	31.2 +0.1	20.95 +.32	15.3 -0.7	12.96 +.32	39.0 -1.0	42.16 +.32	57.5 -1.0
	28.7	55.72 .70	31.7 0.8	21.27 .32	14.8 -0.1	13.26 .30	38.2 0.7	42.46 .30	56.6 0.7
Mar.	10.7	56.41 .63	32.8 1.4	21.56 .29	14.9 +0.3	13.54 .27	37.7 -0.3	42.75 .26	56.1 -0.3
	20.7	57.03 .52	34.5 2.0	21.84 .26	15.5 0.8	13.81 .25	37.6 +0.1	43.01 .26	56.0 0.0
	30.6	57.55 .42	36.8 2.4	22.08 .23	16.5 1.2	14.05 .23	37.9 0.4	43.26 .22	56.1 +0.3
Apr.	9.6	57.97 +.30	39.4 +2.8	22.29 +.20	17.9 +1.6	14.26 +.20	38.4 +0.7	43.48 +.21	56.6 +0.6
	19.6	58.27 .22	42.4 3.0	22.47 .16	19.7 1.9	14.45 .18	39.3 0.9	43.67 .18	57.4 0.8
	29.5	58.46 +.11	45.5 3.2	22.62 .13	21.7 2.1	14.61 .15	40.3 1.1	43.84 .15	58.3 1.0
May	9.5	58.52 .00	48.7 3.2	22.73 .10	23.9 2.2	14.74 .12	41.5 1.2	43.98 .12	59.5 1.2
	19.5	58.46 .11	51.9 3.1	22.81 .06	26.2 2.3	14.85 .09	42.8 1.3	44.09 .10	60.7 1.2
	29.5	58.28 .21	55.0 +2.9	22.85 +.03	28.4 +2.1	14.92 +.06	44.2 +1.4	44.17 +.06	62.0 +1.3
June	8.4	57.99 .31	57.8 2.7	22.86 -.02	30.6 2.1	14.96 +.01	45.5 1.3	44.22 +.03	63.2 1.3
	18.4	57.61 .41	60.3 2.3	22.83 .05	32.7 1.9	14.97 .00	46.9 1.3	44.24 .00	64.5 1.2
	28.4	57.14 .52	62.5 1.9	22.78 .07	34.6 1.7	14.95 .03	48.1 1.2	44.23 .03	65.7 1.2
July	8.4	56.59 .58	64.2 1.5	22.69 .10	36.2 1.5	14.90 .06	49.2 1.1	44.18 .06	66.8 1.0
	18.3	55.98 .63	65.4 +1.0	22.57 .13	37.5 +1.2	14.82 .09	50.2 +0.9	44.11 -.09	67.7 +0.9
	28.3	55.32 .68	66.2 +0.5	22.43 .15	38.5 0.9	14.72 .11	51.0 0.7	44.01 .11	68.5 0.7
Aug.	7.3	54.63 .72	66.4 -0.1	22.27 .17	39.2 0.5	14.60 .13	51.7 0.6	43.89 .13	69.2 0.6
	17.2	53.92 .73	66.1 0.6	22.09 .18	39.6 +0.1	14.46 .14	52.1 0.4	43.75 .14	69.7 0.4
	27.2	53.21 .70	65.2 1.2	21.91 .18	39.5 -0.2	14.30 .15	52.4 +0.2	43.60 .15	70.0 +0.2
Sept.	6.2	52.52 [illegible]	[illegible] 1.6	21.72 -.18	39.2 -0.6	14.15 -.15	52.5 0.0	43.44 .15	70.1 0.0
	16.2	[illegible]	[illegible]	21.55 .17	[illegible]	14.00 .14	52.3 -0.3	[illegible] .14	70.0 0.6
	26.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	69.7 0.4
Oct.	6.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	16.1	[illegible]	[illegible]	[illegible]	34.0 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	26.1	[illegible]	[illegible]	21.10 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nov.	5.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	15.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.7 1.5
	25.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 1.7
Dec.	4.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.8 1.9
	14.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.2 -2.0
	24.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57.2 2.0
	34.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] -2.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Ursæ Minoris.		ε Coronæ Borealis.		δ Scorpii.		β¹ Scorpii.	
	Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *South.*	Right Ascension.	Declination *South.*
	h m 15 47	° ′ +78 6	h m 15 53	° ′ +27 10	h m 15 54	° ′ −22 19	h m 15 59	° ′ −19 31
	s	″	s	″	s	″	s	″
(Dec. 30.9)	39.93+ .67	19.0 −3.1	19.02 +.27	18.7 −2.8	14.19 +.30	46.7 −0.8	26.49 +.29	29.6 −0.9
Jan. 9.9	40.68 .82	16.2 2.6	19.30 .30	16.1 2.5	14.50 .32	47.6 0.9	26.80 .31	30.6 1.0
19.8	41.58 .94	13.8 2.1	19.61 .32	13.7 2.2	14.84 .34	48.6 1.0	27.12 .33	31.6 1.0
29.8	42.57 1.03	12.0 1.5	19.93 .33	11.6 1.8	15.18 .35	49.7 1.1	27.46 .34	32.7 1.1
Feb. 8.8	43.64 1.08	10.9 0.8	20.27 .33	10.0 1.3	15.53 .35	50.8 1.1	27.80 .34	33.9 1.1
18.7	44.73+1.09	10.4 −0.1	20.60 +.32	9.0 −0.8	15.88 +.34	51.9 −1.1	28.14 +.33	35.0 −1.1
28.7	45.81 1.06	10.6 +0.5	20.92 .31	8.4 −0.3	16.21 .33	53.0 1.0	28.47 .32	36.0 1.0
Mar. 10.7	46.84 .99	11.5 1.2	21.22 .30	8.4 +0.2	16.53 .31	54.0 1.0	28.78 .31	36.9 0.9
20.7	47.78 .89	13.0 1.7	21.51 .27	8.8 0.7	16.83 .29	54.9 0.9	29.08 .29	37.7 0.7
30.6	48.61 .75	15.0 2.2	21.77 .25	9.8 1.2	17.11 .27	55.7 0.8	29.36 .27	38.4 0.6
Apr. 9.6	49.29+ .60	17.5 +2.6	22.00 +.22	11.2 +1.6	17.36 +.24	56.4 −0.7	29.61 +.24	38.9 −0.5
19.6	49.81 .43	20.3 2.9	22.20 .17	12.9 1.9	17.59 .22	57.0 0.6	29.84 .22	39.4 0.4
29.6	50.15 .25	23.4 3.1	22.37 .15	14.9 2.1	17.79 .19	57.5 0.5	30.04 .19	39.7 0.3
May 9.5	50.31+ .07	26.6 3.2	22.51 .12	17.2 2.3	17.96 .16	57.9 0.4	30.21 .16	39.9 0.2
19.5	50.28− .12	29.9 3.2	22.61 .08	19.5 2.3	18.10 .13	58.2 0.3	30.36 .13	40.0 0.1
29.5	50.08− .29	33.0 +3.1	22.67 +.05	21.8 +2.3	18.21 +.09	58.4 −0.2	30.47 +.10	40.1 −0.1
June 8.4	49.70 .46	36.0 2.9	22.70 +.02	24.2 2.2	18.29 .06	58.6 0.2	30.55 .06	40.1 0.0
18.4	49.16 .61	38.7 2.6	22.70 −.02	26.4 2.1	18.33 +.02	58.8 −0.1	30.59 +.03	40.1 0.0
28.4	48.47 .75	41.1 2.2	22.65 .06	28.4 1.9	18.33 −.01	58.9 0.0	30.60 −.01	40.0 +0.1
July 8.4	47.66 .87	43.1 1.8	22.58 .09	30.2 1.7	18.30 .05	58.9 0.0	30.58 .04	39.9 0.1
18.3	46.74− .96	44.6 +1.3	22.47 −.12	31.7 +1.4	18.24 −.08	58.8 +0.1	30.52 −.07	39.8 +0.2
28.3	45.74 1.04	45.6 0.8	22.34 .15	32.9 1.1	18.15 .11	58.7 0.2	30.43 .10	39.6 0.2
Aug. 7.3	44.67 1.09	46.2 +0.3	22.18 .17	33.8 0.7	18.02 .13	58.5 0.2	30.31 .13	39.3 0.3
17.3	43.56 1.12	46.2 −0.2	22.00 .18	34.3 +0.3	17.88 .15	58.2 0.3	30.17 .14	39.0 0.3
27.2	42.44 1.12	45.7 0.7	21.81 .19	34.5 0.0	17.73 .16	57.8 0.4	30.02 .15	38.6 0.4
Sept. 6.2	41.32−1.09	44.7 −1.2	21.62 −.19	34.3 −0.4	17.57 −.16	57.4 +0.4	29.86 −.16	38.2 +0.4
16.2	40.25 1.04	43.2 1.7	21.43 .18	33.7 0.8	17.41 .15	56.9 0.5	29.71 .15	37.8 0.4
26.1	39.24 .96	41.2 2.2	21.26 .16	32.7 1.1	17.27 .13	56.3 0.5	29.56 .13	37.4 0.4
Oct. 6.1	38.32 .86	38.7 2.6	21.11 .14	31.4 1.5	17.15 .10	55.8 0.5	29.44 .10	36.9 0.4
16.1	37.52 .73	35.9 3.0	20.99 .10	29.7 1.8	17.06 .06	55.3 0.5	29.36 .06	36.6 0.3
26.1	36.86− .58	32.8 −3.3	20.91 −.06	27.7 −2.1	17.02 −.02	54.8 +0.4	29.31 −.02	36.3 +0.2
Nov. 5.0	36.36 .41	29.4 3.5	20.87 −.01	25.4 2.4	17.03 +.03	54.5 0.3	29.31 +.03	36.1 +0.1
15.0	36.04 .22	25.8 3.7	20.89 +.04	22.8 2.7	17.09 .09	54.3 +0.1	29.36 .08	36.1 −0.1
25.0	35.92− .02	22.0 3.7	20.96 .10	20.1 2.8	17.20 .14	54.3 −0.1	29.47 .13	36.2 0.3
Dec. 5.0	35.99+ .18	18.3 3.7	21.08 .15	17.2 2.9	17.36 .19	54.5 0.3	29.62 .18	36.6 0.5
14.9	36.27+ .37	14.7 −3.5	21.26 +.20	14.2 −2.9	17.58 +.24	54.0 −0.5	29.83 +.23	37.1 −0.6
24.9	36.74 .56	11.3 3.2	21.48 .24	11.3 2.8	17.84 .28	55.5 0.7	30.08 .27	37.8 0.8
34.9	37.39+ .72	8.2 −2.9	21.74 +.28	8.5 −2.7	18.13 +.31	56.2 −0.9	30.36 +.30	38.7 −0.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date		Groombridge 2320 Right Ascension	Groombridge 2320 Declination North	δ Ophiuchi Right Ascension	δ Ophiuchi Declination South	τ Herculis Right Ascension	τ Herculis Declination North	φ Draconis Right Ascension	φ Draconis Declination North
		h m 16 5	° ′ +68 4	h m 16 8	° ′ − 3 25	h m 16 16	° ′ +46 33	h m 16 22	° ′ +61 44
		s	″	s	″	s	″	s	″
(Dec.	30.9)	59.84	33.6	56.50	53.1	37.71	13.1	34.04	31.7
Jan	9.9	60.28	30.6	56.78	54.7	38.00	10.0	34.38	28.5
	19.8	60.79	27.9	57.08	56.4	38.33	7.3	34.79	25.7
	29.8	61.36	25.8	57.39	57.8	38.62	5.0	35.25	23.4
Feb.	8.8	61.98	24.3	57.70	59.2	39.08	3.2	35.75	21.6
	18.8	62.60	23.5	58.02	60.4	39.46	2.1	36.26	20.5
	28.7	63.26	23.3	58.33	61.2	39.85	1.6	36.78	20.1
Mar	10.7	63.87	23.8	58.63	61.9	40.22	1.7	37.29	20.4
	20.7	64.44	25.0	58.91	62.2	40.58	2.4	37.77	21.3
	30.7	64.96	26.8	59.17	62.3	40.90	3.8	38.21	22.8
Apr	9.6	65.40	29.0	59.41	62.1	41.20	5.6	38.60	24.9
	19.6	65.76	31.7	59.63	61.7	41.45	7.9	38.94	27.4
	29.6	66.04	34.7	59.82	61.2	41.66	10.5	39.20	30.3
May	9.5	66.21	37.9	59.99	60.4	41.82	13.4	39.39	33.4
	19.5	66.29	41.2	60.12	59.6	41.93	16.4	39.51	36.6
	29.5	66.27	44.5	60.23	58.7	42.00	19.4	39.56	39.9
June	8.5	66.16	47.6	60.31	57.8	42.02	22.4	39.53	43.1
	18.4	65.95	50.6	60.35	56.9	41.98	25.2	39.42	46.2
	28.4	65.66	53.2	60.35	56.0	41.90	27.9	39.25	49.0
July	8.4	65.30	55.5	60.34	55.2	41.78	30.2	39.01	51.5
	18.4	64.86	57.4	60.28	54.4	41.61	32.2	38.71	53.6
	28.3	64.37	58.8	60.20	53.8	41.40	33.8	38.36	55.3
Aug	7.3	63.84	59.7	60.09	53.2	41.16	35.0	37.97	56.5
	17.3	63.26	60.2	59.96	52.7	40.90	35.7	37.54	57.2
	27.2	62.67	60.1	59.81	52.4	40.62	36.0	37.09	57.5
Sept	6.2	62.08	59.5	59.65	52.1	40.34	35.8	36.64	57.2
	16.2	61.50	58.4	59.49	52.0	40.06	35.1	36.19	56.4
	26.2	60.95	56.7	59.36	52.1	39.79	33.9	35.75	55.0
Oct	6.1	60.44	54.6	59.24	52.2	39.54	32.2	35.34	53.2
	16.1	59.99	52.1	59.14	52.5	39.32	30.2	34.98	51.0
	26.1	59.62	49.2	59.08	53.1	39.16	27.7	34.68	48.3
Nov	5.1	59.34	45.9	59.05	53.8	39.04	24.7	34.45	45.2
	15.0	59.17	42.4	59.10	54.7	38.98	21.6	34.31	41.9
	25.0	59.10	38.7	59.18	55.8	38.97	18.4	34.24	38.3
Dec	5.0	59.15	35.2	59.32	57.1	39.07	15.2	34.27	34.6
	14.9	59.31	31.3	59.50	58.6	39.22	11.4	34.37	30.7
	24.9	59.59	27.7	59.72	60.1	39.41	8.0	34.54	27.1
	34.9	59.96	24.4	59.97	61.8	39.66	4.8	34.75	23.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Scorpii. (*Antares.*)		β Herculis.		A Draconis.		ζ Ophiuchi.	
	Right Ascension.	Declination *South.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *South.*
	h m 16 23	° ′ −26 12	h m 16 25	° ′ +21 42	h m 16 28	° ′ +68 58	h m 16 31	° ′ −10 21
	s	″	s	″	s	″	s	″
(Dec. 30.9)	5.00 +.28	16.2 −0.5	46.98 +.24	37.5 −2.7	8.44 +.34	68.3 −3.4	28.79 +.25	37.5 −1.2
Jan. 9.9	5.30 .31	16.6 0.6	47.24 .27	34.9 2.5	8.84 .44	65.1 3.0	29.06 .28	38.7 1.2
19.9	5.63 .34	17.3 0.7	47.52 .29	32.6 2.2	9.33 .52	62.3 2.6	29.35 .30	39.9 1.2
29.8	5.97 .35	18.0 0.8	47.82 .31	30.5 1.9	9.89 .59	60.0 2.0	29.66 .31	41.1 1.2
Feb. 8.8	6.33 .35	18.8 0.8	48.14 .32	28.8 1.5	10.50 .63	58.2 1.4	29.97 .32	42.3 1.1
18.8	6.68 +.35	19.7 −0.8	48.45 +.32	27.6 −1.0	11.15 +.65	57.1 −0.8	30.29 +.32	43.2 −0.9
28.7	7.03 .34	20.5 0.8	48.77 .31	26.8 −0.5	11.81 .65	56.7 −0.1	30.61 .31	44.1 0.7
Mar. 10.7	7.37 .33	21.4 0.8	49.08 .30	26.6 0.0	12.46 .63	57.0 +0.6	30.92 .30	44.7 0.5
20.7	7.69 .31	22.1 0.7	49.37 .28	26.8 +0.5	13.07 .59	57.9 1.2	31.22 .29	45.1 0.3
30.7	8.00 .29	22.8 0.7	49.64 .26	27.5 0.9	13.63 .53	59.4 1.8	31.50 .27	45.4 −0.1
Apr. 9.6	8.28 +.27	23.5 −0.6	49.89 +.24	28.6 +1.3	14.13 +.46	61.5 +2.3	31.76 +.25	45.4 +0.1
19.6	8.54 .25	24.1 0.6	50.12 .21	30.1 1.6	14.55 .38	64.0 2.7	32.00 .23	45.2 0.2
29.6	8.78 .22	24.6 0.5	50.32 .18	31.9 1.9	14.88 .28	67.0 3.0	32.22 .21	44.9 0.4
May 9.6	8.98 .19	25.1 0.5	50.48 .15	33.9 2.1	15.12 .18	70.1 3.2	32.41 .18	44.5 0.5
19.5	9.16 .16	25.6 0.4	50.62 .12	36.0 2.2	15.25 +.08	73.4 3.3	32.58 .15	44.0 0.5
29.5	9.30 +.12	26.0 −0.4	50.72 +.09	38.3 +2.2	15.28 −.02	76.7 +3.3	32.71 +.12	43.4 +0.6
June 8.5	9.41 .09	26.3 0.3	50.79 .05	40.5 2.2	15.21 .12	80.0 3.2	32.82 .00	42.8 0.6
18.4	9.48 .05	26.7 0.3	50.82 +.01	42.6 2.1	15.04 .22	83.1 3.0	32.88 .05	42.2 0.6
28.4	9.51 +.01	26.9 0.2	50.81 −.02	44.7 1.9	14.78 .31	85.9 2.7	32.92 +.02	41.6 0.6
July 8.4	9.50 −.03	27.1 0.2	50.77 .06	46.5 1.7	14.43 .39	88.4 2.3	32.91 −.02	41.1 0.5
18.4	9.45 −.06	27.3 −0.1	50.70 −.09	48.1 +1.5	14.01 −.46	90.6 +1.9	32.88 −.05	40.5 +0.5
28.3	9.37 .10	27.4 0.0	50.59 .12	49.5 1.2	13.51 .52	92.3 1.5	32.80 .09	40.1 0.5
Aug. 7.3	9.26 .13	27.3 +0.1	50.46 .15	50.6 0.9	12.96 .57	93.6 1.0	32.70 .11	39.6 0.4
17.3	9.12 .15	27.2 0.2	50.29 .17	51.4 0.6	12.37 .60	94.3 +0.5	32.57 .14	39.2 0.4
27.3	8.96 .16	27.0 0.3	50.12 .18	51.8 +0.3	11.75 .62	94.5 0.0	32.43 .15	38.9 0.3
Sept 6.2	8.79 −.17	26.6 +0.4	49.93 −.18	51.9 −0.1	11.12 −.63	94.3 −0.5	32.27 −.16	38.6 +0.3
16.2	8.62 .17	26.2 0.5	49.75 .18	51.6 0.4	10.49 .62	93.4 1.0	32.11 .16	38.4 0.2
26.2	8.45 .15	25.7 0.5	49.57 .17	51.1 0.8	9.89 .59	92.1 1.5	31.96 .14	38.2 +0.1
Oct. 6.1	8.31 .13	25.1 0.6	49.41 .15	50.1 1.1	9.32 .54	90.3 2.0	31.82 .12	38.2 0.0
16.1	8.20 .09	24.5 0.6	49.27 .12	48.9 1.4	8.81 .47	88.0 2.5	31.72 .09	38.2 −0.1
26.1	8.13 −.05	23.9 +0.6	49.18 −.08	47.3 −1.7	8.37 −.39	85.4 −2.9	31.64 −.05	38.4 −0.2
Nov 5.1	8.11 .00	23.4 0.5	49.12 −.03	45.4 2.0	8.02 .30	82.3 3.2	31.61 −.01	38.7 0.4
15.0	8.14 +.06	22.9 0.4	49.11 +.02	43.2 2.2	7.78 .19	79.0 3.5	31.63 +.04	39.1 0.5
25.0	8.22 .11	22.6 0.2	49.15 .07	40.8 2.5	7.64 −.08	75.4 3.6	31.69 .09	39.8 0.7
Dec 5.0	8.36 .17	22.4 +0.1	49.24 .12	38.2 2.6	7.62 +.04	71.7 3.7	31.81 .14	40.6 0.9
15.0	8.56 +.22	22.5 −0.1	49.39 +.17	35.5 −2.7	7.72 +.16	68.0 −3.7	31.97 +.19	41.5 −1.0
24.9	8.80 .26	22.7 0.3	49.58 .21	32.8 2.7	7.94 .28	64.4 3.5	32.18 .23	42.6 1.1
34.9	9.08 +.30	23.0 −0.5	49.81 +.25	30.2 −2.6	8.27 +.38	60.9 −3.3	32.43 +.26	43.8 −1.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date.	α Trianguli Australis Right Ascension.	α Trianguli Australis Declination South.	η Herculis Right Ascension.	η Herculis Declination North.	κ Ophiuchi Right Ascension.	κ Ophiuchi Declination North.	ε Ursæ Minoris Right Ascension.	ε Ursæ Minoris Declination North.
	h m 16 37	° ′ −68 50	h m 16 39	° ′ +39 6	h m 16 52	° ′ + 9 31	h m 16 56	° ′ +82 11
	s	″	s	″	s	″	s	″
(Dec 30.9)	43.48 +.67	16.0 +1.8	20.93 +.21	50.1 1.1	47.04 +.21	56.5 −0.1	21.65 +.50	67.7 3.4
Jan 9.9	44.08 .65	14.5 1.5	21.18 .29	47.1 2.9	47.27 .23	54.4 2.1	22.31 .80	64.5 3.2
19.8	44.70 .71	13.0 1.1	21.47 .30	44.3 2.6	47.54 .27	52.4 1.9	23.25 1.06	61.6 2.6
29.8	45.44 .76	12.2 0.7	21.79 .33	41.9 2.1	47.82 .30	50.6 1.6	24.42 1.27	59.2 2.1
Feb 8.8	46.22 .79	11.7 +0.2	22.13 .35	40.0 1.6	48.12 .30	49.1 1.3	25.70 1.44	57.3 1.6
18.8	47.01 +.80	11.7 −0.2	22.49 +.35	38.7 +1.1	48.42 +.30	47.9 1.0	27.20 +1.55	55.9 1.0
28.7	47.81 .79	12.1 0.6	22.84 .35	37.9 0.5	48.72 .30	47.1 0.7	28.88 1.60	55.3 0.5
Mar 10.7	48.59 .77	12.8 0.9	23.19 .34	37.7 +0.1	49.02 .30	46.6 0.3	30.48 1.59	55.3 +0.3
20.7	49.35 .72	13.9 1.3	23.52 .32	38.2 0.9	49.32 .29	46.6 +0.1	32.04 1.52	55.9 0.9
30.7	50.07 .70	15.4 1.6	23.83 .30	39.2 1.3	49.60 .27	46.9 0.5	33.50 1.39	57.2 1.5
Apr 9.6	50.75 +.65	17.2 1.9	24.12 +.27	40.7 +1.7	49.86 +.25	47.6 +0.8	34.81 +1.22	59.0 +2.2
19.6	51.36 .58	19.1 2.1	24.38 .24	42.7 2.2	50.10 .23	48.7 1.1	35.93 1.02	61.3 2.5
29.6	51.91 .50	21.3 2.2	24.60 .20	45.1 2.5	50.32 .21	49.9 1.4	36.82 .76	64.0 2.9
May 9.5	52.39 .41	23.7 2.4	24.79 .16	47.7 2.7	50.52 .18	51.4 1.6	37.45 .50	67.0 3.1
19.5	52.78 .34	26.2 2.5	24.93 .12	50.5 2.8	50.68 .15	53.1 1.7	37.81 +.22	70.2 3.2
29.5	53.08 +.25	28.7 2.6	25.03 +.08	53.4 +2.9	50.82 +.12	54.8 +1.7	37.89 −.08	73.5 +3.2
June 8.5	53.29 .16	31.3 2.5	25.09 +.04	56.3 2.8	50.93 .09	56.5 1.7	37.69 .34	76.7 3.2
18.4	53.39 +.06	33.8 2.5	25.11 .00	59.1 2.7	51.00 .06	58.3 1.7	37.21 .60	79.8 3.0
28.4	53.40 .04	36.2 2.3	25.08 .04	61.7 2.5	51.03 +.02	59.9 1.6	36.47 .88	82.8 2.8
July 8.4	53.31 .14	38.4 2.1	25.00 .09	64.1 2.2	51.03 .02	61.4 1.4	35.49 1.09	85.5 2.5
18.4	53.12 .23	40.3 1.8	24.87 .13	66.2 +1.9	50.99 .05	62.8 +1.2	34.30 1.30	87.8 +2.1
28.3	52.84 .30	42.0 1.5	24.74 .17	68.0 1.6	50.92 .09	64.0 1.0	32.91 1.47	89.8 1.7
Aug 7.3	52.48 .39	43.3 1.1	24.55 .20	69.4 1.2	50.81 .12	65.0 0.8	31.36 1.62	91.3 1.3
17.3	52.06 .44	44.1 0.6	24.33 .22	70.4 0.8	50.68 .14	65.8 0.6	29.69 1.70	92.3 0.8
27.2	51.60 .48	44.5 −0.2	24.10 .24	70.9 +0.3	50.53 .16	66.3 0.4	27.93 1.79	92.9 +0.3
Sept 6.2	51.10 −.52	44.4 +0.3	23.86 .25	71.1 −0.1	50.36 .17	66.6 +0.2	26.12 1.83	92.9 0.2
16.2	50.58 .54	43.9 0.8	23.61 .26	70.7 0.6	50.19 .17	66.7 −0.1	24.30 1.81	92.4 0.7
26.2	50.04 .55	42.9 1.2	23.36 .25	69.9 1.0	50.02 .16	66.5 0.3	22.51 1.76	91.5 1.2
Oct 6.1	49.49 .55	41.4 1.6	23.11 .23	68.7 1.5	49.86 .14	66.0 0.6	20.80 1.64	90.2 1.7
16.1	48.95 .53	39.6 2.0	22.88 .18	67.0 1.9	49.73 .11	65.3 0.8	19.19 1.51	88.2 2.1
26.1	48.43 .50	37.4 +2.3	22.70 −.14	64.7 2.3	49.62 .08	64.3 −1.1	17.73 1.35	85.8 2.5
Nov 5.1	47.93 −.46	35.0 2.5	22.60 .09	62.5 2.6	49.56 .04	63.1 1.4	16.50 1.13	83.2 2.9
15.0	47.47 .40	32.4 2.6	22.52 .04	59.7 2.9	49.53 +.01	61.6 1.6	15.49 .88	80.1 3.2
25.0	47.07 .33	29.8 2.6	22.51 +.03	56.7 3.1	49.54 .03	59.9 1.8	14.75 .60	76.8 3.4
Dec 5.0	46.74 .27	27.2 2.4	22.60 .09	53.5 3.0	49.65 .10	58.0 2.0	14.29 .30	73.3 3.5
15.0	46.52 +.19	24.8 +2.1	22.78 +.16	50.3 −3.1	49.78 +.15	56.0 2.1	14.15 +.00	69.8 3.5
24.9	46.37 .09	22.6 2.0	22.96 .19	47.2 3.1	49.95 .19	53.3 2.1	14.32 .31	66.3 3.4
34.9	46.33 +.00	[illegible]	23.18 +.24	44.1 3.1	[illegible]	[illegible]	[illegible]	62.9 3.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Date		[illegible]		[illegible] Herculis		δ Ophiuchi		[illegible]	
		Right Ascension.	Declination.	Right Ascension.	Declination North.	Right Ascension.	Declination.	Right Ascension.	Declination.
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date		α Ophiuchi Right Ascension	α Ophiuchi Declination North	ω Draconis Right Ascension	ω Draconis Declination North	μ Herculis Right Ascension	μ Herculis Declination North	ψ¹ Draconis Right Ascension	ψ¹ Draconis Declination North
		h m 17 30	° ′ +12 37	h m 17 37	° ′ +68 47	h m 17 42	° ′ +27 46	h m 17 43	° ′ +72 11
		s	″	s	″	s	″	s	″
(Dec	30.9)	8.53 +.20	58.4 −2.0	29.72 +.22	67.6 −3.7	24.76 +.17	40.6 −2.9	41.64 +.19	45.8 −3.6
Jan	9.9	8.73 .21	54.2 2.1	29.95 .26	64.1 3.6	24.94 .20	37.8 2.7	41.87 .29	42.3 3.4
	19.9	8.96 .24	52.1 2.0	30.28 .37	60.9 3.1	25.16 .24	35.2 2.5	42.22 .41	39.0 3.1
	29.9	9.22 .27	50.3 1.7	30.71 .41	58.0 2.7	25.41 .27	32.8 2.2	42.69 .50	36.0 2.7
Feb	8.8	9.50 .28	48.7 1.4	31.22 .54	55.5 2.2	25.69 .29	30.7 1.8	43.26 .61	33.6 2.0
	18.8	9.79 +.30	47.4 1.1	31.70 +.50	53.7 −1.6	25.99 +.30	29.1 −1.4	43.91 +.68	31.6 −1.6
	28.8	10.09 .30	46.5 0.7	32.41 .61	52.4 0.9	26.30 .31	27.9 0.9	44.61 .70	30.3 1.0
Mar	10.7	10.39 .30	46.0 −0.3	33.05 .64	51.8 0.3	26.61 .32	27.3 −0.1	45.35 .76	29.6 −0.3
	20.7	10.69 .30	49.0 +0.1	33.69 .64	51.9 +0.4	26.93 .31	27.2 +0.2	46.10 .76	29.6 +0.3
	30.7	10.98 .29	46.2 0.5	34.32 .64	52.6 1.1	27.24 .30	27.7 0.8	46.83 .71	30.2 1.0
Apr	9.7	11.26 +.27	47.0 +1.0	34.91 +.56	54.0 +1.7	27.54 +.29	28.7 +1.2	47.52 +.66	31.5 +1.6
	19.6	11.53 .26	48.1 1.1	35.44 .51	56.0 2.2	27.82 .27	30.1 1.6	48.16 .59	33.4 2.1
	29.6	11.78 .24	49.5 1.5	35.92 .43	58.4 2.6	28.08 .25	31.9 2.0	48.71 .50	35.8 2.6
May	9.6	12.00 .21	51.2 1.8	36.31 .35	61.2 3.0	28.32 .22	34.1 2.3	49.17 .41	38.6 2.9
	19.6	12.20 .18	53.0 1.9	36.61 .25	64.4 3.3	28.53 .19	36.5 2.5	49.52 .30	41.7 3.0
	29.5	12.37 +.15	55.0 +2.0	36.82 +.16	67.7 +3.4	28.70 +.16	39.1 +2.6	49.76 +.18	45.0 +3.3
June	8.5	12.51 .11	57.0 2.0	36.92 +.02	71.2 3.4	28.84 .12	41.7 2.7	49.88 +.06	48.4 3.4
	18.5	12.61 .08	59.0 1.9	36.92 .05	74.6 3.4	28.94 .08	44.4 2.6	49.88 .06	51.8 3.4
	28.4	12.67 .04	60.9 1.8	36.82 .15	78.0 3.2	28.99 +.04	47.0 2.5	49.75 .18	55.1 3.3
July	8.4	12.70 +.01	62.7 1.7	36.62 .25	81.1 3.0	29.01 .01	49.5 2.3	49.51 .30	58.3 3.0
	18.4	12.68 −.03	64.4 +1.6	36.32 .34	84.0 +2.7	28.98 .03	51.7 +2.0	49.15 −.41	61.2 +2.8
	28.4	12.63 .07	65.9 1.4	35.94 .42	86.6 2.4	28.91 .09	53.8 1.9	48.69 .51	63.8 2.4
Aug	7.3	12.54 .10	67.1 1.1	35.48 .49	88.8 2.0	28.80 .13	55.5 1.6	48.14 .59	66.0 2.0
	17.3	12.42 .14	68.1 0.9	34.96 .55	90.5 1.5	28.65 .16	56.9 1.3	47.51 .66	67.9 1.6
	27.3	12.26 .16	68.9 0.6	34.37 .60	91.8 1.1	28.48 .19	58.0 0.9	46.81 .70	69.2 1.1
Sept	6.3	12.11 .17	69.4 +0.4	33.76 .63	92.6 +0.5	28.28 .20	58.7 +0.3	46.07 .76	70.1 +0.6
	16.2	11.93 .18	69.6 +0.1	33.12 .64	92.9 0.0	28.07 .21	59.0 +0.1	45.30 .78	70.5 +0.1
	26.2	11.76 .19	69.5 −0.2	32.46 .64	92.7 −0.3	27.86 .22	59.0 −0.3	44.52 .77	70.3 −0.4
Oct	6.2	11.58 .16	69.2 0.5	31.83 .60	91.9 1.0	27.65 .20	58.5 0.7	43.74 .75	69.6 1.0
	16.1	11.43 .14	68.6 0.8	31.22 .58	90.6 1.4	27.45 .18	57.6 1.1	43.01 .71	68.4 1.6
	26.1	11.30 .11	67.6 1.1	30.67 .50	88.9 1.9	27.27 .16	56.4 −1.4	42.33 .64	66.7 −2.0
Nov	5.1	11.20 .08	66.4 1.3	30.18 .43	86.6 2.4	27.16 .11	54.7 1.8	41.72 .56	64.6 2.4
	15.1	11.15 −.05	65.0 1.6	29.76 .38	83.9 2.9	27.07 .07	52.7 2.1	41.22 .46	61.9 2.8
	25.0	11.14 +.01	63.2 1.8	29.47 .29	80.9 3.1	27.02 .02	50.5 2.4	40.81 .36	58.9 3.1
Dec	5.0	11.18 .06	61.3 2.0	29.27 .14	77.5 3.4	27.00 +.03	47.9 2.6	40.53 .20	55.7 3.4
	15.0	11.27 +.11	59.2 −2.1	29.19 −.04	74.0 3.6	27.07 +.08	45.2 2.8	40.39 .07	52.2 −3.5
	25.0	11.40 .13	57.1 2.2	29.22 +.09	70.4 3.6	27.18 .11	42.4 2.9	40.39 +.06	48.6 3.6
	34.9	11.57 +.20	54.9 −2.2	29.38 +.11	66.8 −3.7	27.33 +.15	39.6 −3.0	40.52 +.21	45.1 −3.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.		d Herculis. Right Ascension.	d Herculis. Declination North.	a¹ Herculis. Right Ascension.	a¹ Herculis. Declination North.	b Ophiuchi. Right Ascension.	b Ophiuchi. Declination South.	β Draconis. Right Ascension.	β Draconis. Declination North.
		h m 16 57	° ′ +33 42	h m 17 9	° ′ +14 30	h m 17 20	° ′ −24 4	h m 17 28	° ′ +52 22
		s	″	s	″	s	″	s	″
(Dec.	30.9)	47.29 +.20	49.4 −3.0	56.42 +.20	17.3 −2.3	4.20 +.23	55.2 −0.2	4.62 +.17	26.2 −3.4
Jan.	9.9	47.52 .25	46.4 2.8	56.64 .23	15.0 2.2	4.45 .26	55.4 0.3	4.83 .24	22.8 3.2
	19.9	47.79 .28	43.7 2.5	56.88 .26	12.9 2.0	4.73 .29	55.7 0.4	5.10 .29	19.7 3.0
	29.8	48.08 .31	41.4 2.2	57.16 .28	11.0 1.8	5.04 .31	56.1 0.4	5.41 .34	16.9 2.6
Feb.	8.8	48.40 .32	39.4 1.7	57.45 .29	9.3 1.5	5.36 .33	56.5 0.4	5.77 .37	14.5 2.0
	18.8	48.73 +.33	37.9 −1.2	57.75 +.30	8.0 −1.1	5.69 .34	56.9 −0.4	6.16 +.40	12.7 −1.5
	28.8	49.06 .33	37.0 0.7	58.05 .30	7.2 0.7	6.03 .34	57.3 0.4	6.56 .41	11.6 0.8
Mar.	10.7	49.39 .33	36.7 −0.1	58.36 .30	6.7 −0.2	6.37 .34	57.7 0.3	6.98 .41	11.0 −0.2
	20.7	49.72 .32	36.9 +0.5	58.65 .29	6.7 +0.2	6.70 .33	58.0 0.2	7.39 .40	11.2 +0.4
	30.7	50.02 .30	37.7 1.0	58.94 .28	7.1 0.6	7.03 .32	58.2 0.2	7.79 .39	11.9 1.1
Apr.	9.6	50.31 +.28	39.0 +1.5	59.21 +.26	7.9 +1.0	7.34 +.31	58.4 −0.2	8.17 +.36	13.3 +1.6
	19.6	50.58 .25	40.8 1.9	59.47 .24	9.1 1.3	7.64 .29	58.5 0.1	8.52 .33	15.3 2.1
	29.6	50.81 .21	43.0 2.3	59.70 .22	10.6 1.6	7.91 .27	58.6 −0.1	8.83 .29	17.7 2.6
May	9.6	51.01 .18	45.4 2.5	59.91 .19	12.3 1.8	8.17 .24	58.6 0.0	9.09 .24	20.4 2.9
	19.5	51.18 .15	48.1 2.7	60.09 .16	14.2 1.9	8.40 .21	58.6 0.0	9.31 .19	23.5 3.1
	29.5	51.30 +.11	50.8 +2.8	60.24 +.13	16.2 +2.0	8.59 +.18	58.7 −0.1	9.47 +.13	26.7 +3.3
June	8.5	51.39 .07	53.6 2.8	60.36 .10	18.3 2.0	8.76 .14	58.7 0.1	9.57 .07	30.0 3.3
	18.5	51.43 +.02	56.3 2.7	60.44 .06	20.3 1.9	8.88 .10	58.8 0.1	9.62 +.01	33.3 3.2
	28.4	51.44 −.02	58.9 2.5	60.48 +.02	22.2 1.8	8.96 .06	58.9 0.1	9.60 −.04	36.5 3.1
July	8.4	51.40 .06	61.4 2.3	60.49 −.01	24.1 1.7	9.00 +.02	59.0 0.1	9.53 .10	39.5 2.9
	18.4	51.31 −.10	63.5 +2.0	60.46 −.05	25.7 +1.5	9.00 −.02	59.1 −0.1	9.39 −.16	42.2 +2.6
	28.3	51.19 .14	65.4 1.7	60.39 .09	27.2 1.3	8.96 .06	59.2 0.1	9.21 .21	44.6 2.2
Aug.	7.3	51.04 .17	66.9 1.3	60.28 .12	28.4 1.1	8.88 .10	59.3 −0.1	8.97 .26	46.7 1.8
	17.3	50.85 .20	68.0 0.9	60.15 .14	29.3 0.8	8.77 .14	59.3 0.0	8.70 .29	48.3 1.4
	27.3	50.64 .22	68.8 0.5	60.00 .16	30.0 0.5	8.62 .15	59.3 0.0	8.38 .32	49.5 0.9
Sept.	6.2	50.42 −.22	69.1 +0.1	59.82 −.18	30.4 +0.3	8.46 −.17	59.2 +0.1	8.05 −.34	50.1 +0.4
	16.2	50.19 .22	69.0 −0.3	59.64 .18	30.5 0.0	8.28 .17	59.0 0.2	7.70 .35	50.3 −0.1
	26.2	49.97 .21	68.5 0.7	59.46 .17	30.3 −0.3	8.11 .17	58.8 0.2	7.35 .35	50.0 0.5
Oct.	6.2	49.76 .20	67.5 1.2	59.30 .16	29.8 0.6	7.94 .15	58.5 0.3	7.01 .33	49.2 1.1
	16.1	49.57 .17	66.2 1.6	59.15 .13	29.0 0.9	7.80 .13	58.2 0.3	6.70 .30	47.8 1.6
	26.1	49.41 −.13	64.4 −2.0	59.03 −.10	28.0 −1.2	7.69 −.09	57.8 +0.4	6.41 −.26	46.0 −2.0
Nov.	5.1	49.30 .09	62.2 2.3	58.95 .06	26.6 1.5	7.61 −.05	57.4 0.3	6.18 .21	43.7 2.4
	15.0	49.23 −.04	59.8 2.6	58.91 −.02	25.0 1.7	7.59 .00	57.1 0.3	6.00 .15	41.1 2.8
	25.0	49.22 +.01	57.0 2.8	58.91 +.03	23.1 1.9	7.61 +.05	56.8 0.2	5.88 .08	38.0 3.1
Dec.	5.0	49.26 .07	54.1 3.0	58.97 .08	21.0 2.1	7.69 .10	56.6 +0.1	5.83 −.01	34.8 3.3
	15.0	49.36 +.13	51.0 −3.1	59.08 +.13	18.8 −2.3	7.82 +.15	56.6 0.0	5.86 +.06	31.3 −3.5
	24.9	49.51 .18	47.9 3.1	59.23 .17	16.5 2.3	8.00 .20	56.6 −0.1	5.95 .13	27.8 3.5
	34.9	49.71 +.22	44.8 −3.0	59.41 +.20	14.2 −2.3	8.22 +.24	56.8 −0.2	6.12 +.20	24.3 −3.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	α Ophiuchi Right Ascension	α Ophiuchi Declination North	ω Draconis Right Ascension	ω Draconis Declination North	μ Herculis Right Ascension	μ Herculis Declination North	ψ¹ Draconis Right Ascension	ψ¹ Draconis Declination North
	h m 17 30	° ′ +12 37	h m 17 37	° ′ +68 47	h m 17 42	° ′ +27 46	h m 17 43	° ′ +72 11
	s	″	s	″	s	″	s	″
(Dec 30.9)	8.53 +.20	56.4 −2.2	29.72 +.20	67.6 −3.7	24.76 +.17	40.6 −2.9	41.64 +.15	45.8 −3.6
Jan 9.9	8.73 .22	54.2 2.1	29.95 .26	64.1 3.4	24.94 .20	37.8 2.7	41.87 .29	42.3 3.4
19.9	8.96 .24	52.1 2.0	30.26 .27	60.9 3.1	25.16 .24	35.2 2.3	42.22 .41	39.0 3.1
29.9	9.22 .27	50.3 1.7	30.71 .4[illegible]	58.0 2.[illegible]	25.41 .27	32.8 2.2	42.69 .50	36.0 2.7
Feb 8.8	9.50 .28	48.7 1.4	31.22 .54	55.5 2.2	25.69 .29	30.7 1.8	43.26 .61	33.6 2.0
18.8	9.79 +.30	47.4 1.1	31.79 +.59	53.7 −1.6	25.99 +.30	29.1 −1.4	43.91 +.68	31.6 −1.8
28.8	10.09 .30	46.5 0.7	32.41 .63	52.4 0.9	26.30 .31	27.9 0.9	44.61 .70	30.3 1.0
Mar 10.7	10.39 .30	46.0 −0.3	33.05 .64	51.8 −0.3	26.61 .32	27.3 −0.1	45.35 .76	29.6 −0.3
20.7	10.69 .30	45.9 +0.1	33.69 .64	51.9 +0.4	26.93 .31	27.2 +0.2	46.10 .76	29.6 +0.3
30.7	10.98 .29	46.2 0.5	34.32 .62	52.6 1.1	27.24 .30	27.7 0.[illegible]	46.83 .71	30.2 1.0
Apr 9.7	11.26 +.27	47.0 +1.0	34.91 +.56	54.0 +1.7	27.54 +.28	28.7 +1.2	47.52 +.66	31.5 +1.6
19.6	11.53 .26	48.2 1.3	35.44 .51	56.0 2.2	27.82 .27	30.1 1.6	48.16 .59	33.4 2.1
29.6	11.78 .24	49.5 1.5	35.92 .43	58.4 2.6	28.08 .24	31.9 2.0	48.72 .50	35.8 2.6
May 9.6	12.00 .21	51.2 1.8	36.31 .35	61.2 3.0	28.32 .22	34.1 2.3	49.17 .41	38.6 2.9
19.6	12.20 .18	53.0 1.9	36.61 .25	64.4 3.3	28.53 .19	36.5 2.5	49.52 .30	41.7 3.0
29.5	12.37 +.15	55.0 +2.0	36.82 +.16	67.7 +3.4	28.70 +.16	39.1 +2.6	49.76 +.18	45.0 +3.3
June 8.5	12.51 .12	57.0 2.0	36.93 +.0[illegible]	71.2 3.4	28.84 .12	41.7 2.7	49.[illegible] +.06	48.4 3.4
18.5	12.61 .08	59.0 1.9	36.[illegible] .0[illegible]	74.6 3.4	28.[illegible] .08	44.4 2.6	49.[illegible] .0[illegible]	51.8 3.4
28.4	12.67 .04	60.9 1.8	36.[illegible] .13	[illegible] 3.1	28.99 +.02	47.0 2.5	49.73 .10	55.1 3.3
July 8.4	12.70 +.01	62.7 2.[illegible]	36.[illegible] .[illegible]	81.1 3.0	29.01 .0[illegible]	49.5 2.3	49.51 .30	58.3 3.0
18.4	12.68 −.03	64.4 +1.6	36.12 .34	84.0 +[illegible]	28.98 .05	51.7 +2.0	49.15 −.41	61.2 +2.8
28.4	12.63 .07	65.9 1.4	35.[illegible] .42	[illegible]	28.92 .09	53.8 1.9	48.69 .51	63.8 2.4
Aug 7.3	12.54 .10	67.1 1.1	35.28 .49	88.8 [illegible]	28.80 .13	55.5 1.6	48.14 .59	66.0 2.0
17.3	12.42 .14	68.1 0.9	34.[illegible] .55	90.5 1.[illegible]	28.65 .16	56.9 1.3	47.51 .66	67.9 1.8
27.3	12.26 .16	68.9 0.6	34.17 .6[illegible]	91.8 1.1	28.48 .19	58.0 0.9	46.81 .72	69.2 1.1
Sept 6.3	12.11 .17	69.4 +0.4	33.[illegible] .63	92.6 +0.[illegible]	28.28 .20	58.7 +0.5	46.07 .76	70.1 +0.6
16.2	11.93 .18	69.6 +0.1	33.11 .65	92.9 0.0	28.07 .21	59.0 +0.1	45.29 .78	70.5 +0.1
26.2	11.76 .19	69.5 0.1	32.46 .64	92.7 −0.3	27.86 .22	59.0 0.3	44.51 .77	70.3 −0.4
Oct 6.2	11.58 .16	69.2 0.5	31.83 .62	91.9 1.0	27.65 .20	58.5 0.7	43.74 .75	69.6 1.0
16.1	11.43 .14	68.6 0.8	31.22 .58	90.6 1.[illegible]	27.45 .18	57.6 1.1	43.01 .71	68.4 1.4
26.1	11.30 .11	67.6 1.1	30.67 .52	88.9 1.[illegible]	27.[illegible] .1[illegible]	56.4 −1.4	42.33 .64	66.7 −1.9
Nov 5.1	11.20 .08	66.4 1.3	30.18 .45	86.6 2.[illegible]	27.16 .1[illegible]	54.7 1.8	41.72 .56	64.6 2.4
15.1	11.15 −.0[illegible]	65.0 1.6	29.[illegible] .38	83.9 2.[illegible]	27.[illegible] .0[illegible]	52.7 2.1	41.21 .46	61.9 2.8
25.0	11.14 +.0[illegible]	6[illegible].2 1.8	29.47 .[illegible]	[illegible].9 3.[illegible]	27.[illegible] .[illegible]	50.5 2.4	40.81 .36	58.9 3.1
Dec 5.0	11.18 .06	61.3 2.0	29.27 .16	77.5 3.[illegible]	27.08 +.0[illegible]	47.9 2.6	40.53 .20	55.7 3.4
15.0	11.27 +.11	59.1 −2.1	29.19 .0[illegible]	74.0 3.6	27.0[illegible] +.08	45.2 −2.8	40.39 .07	52.2 −3.5
25.0	11.40 .15	57.1 2.1	29.22 +.09	[illegible] 3.6	27.18 .13	42.4 2.9	40.39 +.08	48.6 3.6
34.9	11.57 +.20	54.9 −2.2	29.[illegible] +.11	6[illegible] −3.[illegible]	27.33 +.19	39.6 −3.0	40.52 +.2[illegible]	45.1 −3.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date		γ Draconis Right Ascension.	γ Draconis Declination North.	γ² Sagittarii. Right Ascension.	γ² Sagittarii. Declination South.	μ Sagittarii. Right Ascension.	μ Sagittarii. Declination South.	η Serpentis. Right Ascension.	η Serpentis. Declination South.
		h m 17 54	° ′ +51 29	h m 17 59	° ′ −30 25	h m 18 7	° ′ −21 5	h m 18 15	° ′ − 2 55
		s	″	s	″	s	″	s	″
Jan.	0.0	11.06 +.13	52.8 −3.5	10.82 +.20	37.0 +0.3	35.63 +.18	14.9 −0.2	58.19 +.15	38.0 −1.2
	9.9	11.23 .20	49.4 3.3	11.04 .24	36.7 0.3	35.82 .22	15.1 0.2	58.36 .18	39.2 1.2
	19.9	11.45 .25	46.1 3.1	11.30 .28	36.4 0.2	36.06 .25	15.3 0.2	58.56 .22	40.4 1.2
	29.9	11.74 .30	43.2 2.7	11.59 .30	36.2 0.2	36.32 .27	15.5 0.2	58.79 .24	41.5 1.1
Feb.	8.9	12.06 .34	40.7 2.3	11.91 .32	36.0 0.1	36.61 .29	15.7 0.2	59.05 .26	42.5 0.9
	18.8	12.42 +.37	38.7 −1.7	12.24 +.34	35.9 +0.1	36.91 +.31	15.8 −0.1	59.32 +.28	43.3 −0.7
	28.8	12.81 .40	37.3 1.1	12.59 .35	35.8 +0.1	37.23 .32	16.0 −0.1	59.60 .29	43.9 0.4
Mar.	10.8	13.21 .40	36.5 −0.5	12.94 .35	35.8 0.0	37.55 .33	16.0 0.0	59.90 .30	44.2 −0.2
	20.8	13.62 .40	36.3 +0.2	13.29 .35	35.7 0.0	37.88 .33	15.9 +0.1	60.20 .30	44.2 +0.1
	30.7	14.02 .40	36.9 0.8	13.64 .35	35.7 0.0	38.20 .33	15.7 0.2	60.50 .30	43.9 0.4
Apr.	9.7	14.41 +.38	38.0 +1.4	13.99 +.34	35.6 0.0	38.52 +.32	15.4 +0.3	60.79 +.29	43.4 +0.6
	19.7	14.77 .35	39.7 2.0	14.32 .33	35.6 0.0	38.84 .31	15.1 0.3	61.08 .28	42.7 0.9
	29.6	15.11 .31	41.9 2.4	14.64 .31	35.6 0.0	39.14 .29	14.8 0.4	61.36 .27	41.7 1.1
May	9.6	15.40 .27	44.6 2.8	14.94 .29	35.7 −0.1	39.42 .27	14.4 0.4	61.62 .25	40.6 1.2
	19.6	15.65 .22	47.5 3.1	15.22 .26	35.8 0.1	39.68 .25	14.0 0.4	61.86 .23	39.3 1.3
	29.6	15.85 +.17	50.7 +3.2	15.46 +.23	36.0 −0.2	39.91 +.22	13.6 +0.4	62.08 +.20	38.0 +1.3
June	8.5	15.99 .11	54.0 3.3	15.67 .19	36.2 0.3	40.12 .19	13.2 0.3	62.27 .17	36.6 1.3
	18.5	16.07 +.06	57.4 3.3	15.84 .15	36.5 0.3	40.29 .15	13.0 0.2	62.43 .14	35.3 1.3
	28.5	16.10 .00	60.6 3.2	15.97 .11	36.9 0.4	40.41 .11	12.8 0.2	62.54 .10	34.1 1.2
July	8.4	16.06 −.06	63.8 3.0	16.05 .08	37.3 0.4	40.50 .07	12.6 0.1	62.62 .06	32.9 1.1
	18.4	15.97 −.12	66.7 +2.8	16.09 +.01	37.8 −0.5	40.54 +.02	12.6 +0.1	62.66 +.02	31.8 +1.0
	18.4	15.82 .18	69.4 2.5	16.08 −.04	38.2 0.4	40.54 −.02	12.5 0.0	62.66 −.02	30.9 0.9
Aug.	7.4	15.61 .23	71.7 2.1	16.02 .08	38.6 0.4	40.49 .07	12.5 0.0	62.61 .06	30.1 0.7
	17.3	15.36 .27	73.6 1.7	15.92 .12	39.0 0.4	40.40 .10	12.6 0.0	62.53 .10	29.4 0.6
	27.3	15.07 .30	75.1 1.3	15.78 .15	39.3 0.3	40.28 .13	12.6 0.0	62.42 .13	28.9 0.4
Sept.	6.3	14.76 −.33	76.1 +0.8	15.62 −.17	39.5 −0.1	40.14 −.16	12.6 0.0	62.28 −.15	28.5 +0.3
	16.3	14.42 .34	76.7 +0.3	15.44 .19	39.6 0.0	39.97 .17	12.6 0.0	62.12 .16	28.3 +0.2
	26.2	14.08 .34	76.7 −0.2	15.25 .19	39.6 +0.1	39.80 .17	12.6 +0.1	61.95 .17	28.2 0.0
Oct.	6.2	13.74 .33	76.2 0.7	15.06 .18	39.4 0.2	39.62 .17	12.5 0.1	61.78 .16	28.3 −0.1
	16.2	13.41 .31	75.2 1.2	14.89 .16	39.0 0.4	39.46 .15	12.4 0.1	61.62 .15	28.5 0.3
	26.2	13.12 −.27	73.7 −1.7	14.74 −.13	38.6 +0.5	39.32 −.12	12.3 +0.2	61.48 −.13	28.8 −0.4
Nov.	5.1	12.86 .23	71.8 2.2	14.63 .09	38.1 0.6	39.22 .09	12.1 0.2	61.38 .10	29.4 0.6
	15.1	12.66 .18	69.4 2.6	14.57 −.04	37.5 0.6	39.15 −.04	12.0 0.1	61.30 .06	30.0 0.7
	25.1	12.52 .12	66.6 3.0	14.56 +.01	36.9 0.6	39.13 +.01	11.8 +0.1	61.27 −.01	30.8 0.9
Dec.	5.0	12.43 .05	63.6 3.2	14.59 .06	36.3 0.5	39.16 .05	11.8 0.0	61.28 +.04	31.8 1.0
	15.0	12.42 +.02	60.2 3.4	14.69 +.12	35.7 +0.5	39.24 +.10	11.8 0.0	61.33 +.08	32.8 −1.1
	25.0	12.48 .09	56.8 3.4	14.83 .17	35.2 0.5	39.36 .15	11.8 −0.1	61.44 .12	34.0 1.2
	35.0	12.60 +.15	53.3 −3.5	15.02 +.21	34.8 +0.3	39.54 +.19	11.9 −0.1	61.58 +.16	35.2 −1.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	ι Aquilæ Right Ascension	ι Aquilæ Declination South	α Lyræ (Vega) Right Ascension	α Lyræ Declination North	β Lyræ Right Ascension	β Lyræ Declination North	σ Sagittarii Right Ascension	σ Sagittarii Declination South
	h m 18 29	° ′ − 8 18	h m 18 33	° ′ +38 40	h m 18 46	° ′ +33 14	h m 18 48	° ′ −26 25
	s	″	s	″	s	″	s	″
Jan 0.0	35.54 +.14	65.1 −0.9	25.78 +.10	68.7 −3.1	15.49 +.09	28.5 −2.9	52.14 +.14	35.4 +0.3
10.0	35.71 .18	66.0 0.8	25.90 .14	65.6 3.0	15.60 .11	25.6 2.9	52.30 .18	35.1 0.3
19.9	35.90 .21	66.8 0.8	26.07 .19	62.6 2.9	15.75 .17	22.8 2.7	52.50 .20	34.7 0.3
29.9	36.13 .24	67.6 0.7	26.28 .23	59.8 2.6	15.95 .21	20.2 2.5	52.74 .25	34.4 0.3
Feb 8.9	36.38 .26	68.2 0.6	26.53 .27	57.4 2.3	16.18 .24	17.8 2.2	53.00 .28	34.1 0.3
18.8	36.65 +.28	68.8 −0.5	26.81 +.30	55.3 1.8	16.44 +.27	15.8 −1.8	53.29 +.30	33.7 +0.4
28.8	36.93 .29	69.1 −0.2	27.12 .32	53.7 1.3	16.72 .30	14.3 1.3	53.60 .30	33.3 0.4
Mar 10.8	37.23 .30	69.3 0.0	27.45 .33	52.7 0.7	17.03 .31	13.3 0.7	53.92 .32	32.9 0.4
20.8	37.53 .31	69.2 +0.2	27.78 .34	52.3 0.1	17.35 .32	12.8 0.2	54.25 .33	32.4 0.5
30.7	37.83 .31	68.9 0.4	28.13 .34	52.5 +0.5	17.67 .33	12.8 +0.4	54.58 .34	31.9 0.5
Apr 9.7	38.14 +.30	68.4 +0.6	28.47 +.34	53.2 +1.1	18.00 +.33	13.6 +0.9	54.92 +.34	31.4 +0.6
19.7	38.44 .30	67.7 0.8	28.80 .32	54.6 1.6	18.32 .32	14.7 1.4	55.26 .34	30.9 0.6
29.7	38.73 .28	66.8 0.9	29.12 .30	56.4 2.0	18.63 .30	16.4 1.9	55.59 .33	30.4 0.5
May 9.6	39.00 .27	65.8 1.0	29.41 .28	58.6 2.4	18.92 .28	18.6 2.3	55.91 .32	29.9 0.5
19.6	39.26 .25	64.7 1.1	29.67 .25	61.2 2.7	19.19 .25	21.0 2.6	56.21 .29	29.4 0.4
29.6	39.50 +.22	63.6 +1.1	29.90 +.21	64.1 +3.0	19.43 +.22	23.7 +2.8	56.49 +.26	29.1 +0.3
June 8.5	39.70 .19	62.5 1.1	30.10 .17	67.2 3.1	19.63 .18	26.6 2.9	56.74 .23	28.8 0.2
18.5	39.88 .15	61.4 1.1	30.24 .12	70.3 3.1	19.80 .14	29.6 3.0	56.95 .19	28.7 +0.1
28.5	40.01 .12	60.4 1.0	30.34 .07	73.4 3.1	19.92 .10	32.6 3.0	57.12 .15	28.6 0.0
July 8.5	40.11 .08	59.4 0.9	30.39 +.03	76.5 3.0	19.99 +.05	35.6 2.9	57.25 .11	28.7 −0.1
18.4	40.16 +.03	58.6 +0.8	30.39 −.02	79.4 +2.8	20.01 .00	38.4 +2.7	57.34 +.06	28.9 −0.2
28.4	40.17 −.02	57.0 0.6	30.34 .06	82.2 2.6	19.99 .05	41.0 2.5	57.37 +.02	29.1 0.3
Aug 7.4	40.14 .05	57.3 0.5	30.24 .11	84.6 2.3	19.91 .09	43.4 2.2	57.36 −.03	29.4 0.3
17.4	40.07 .09	56.8 0.4	30.10 .16	86.7 1.9	19.80 .14	45.4 1.9	57.30 .08	29.8 0.4
27.3	39.97 .12	56.5 0.3	29.92 .20	88.5 1.5	19.64 .17	47.2 1.6	57.20 .12	30.1 0.3
Sept 6.3	39.84 −.14	56.2 +0.1	29.70 −.23	89.8 +1.1	19.46 −.20	48.6 +1.2	57.07 −.15	30.4 −0.3
16.3	39.68 .16	56.1 −0.1	29.46 .24	90.8 0.7	19.25 .22	49.6 0.8	56.91 .17	30.7 0.2
26.2	39.52 .17	56.0 0.0	29.21 .25	91.3 +0.3	19.02 .23	50.1 +0.4	56.73 .18	30.8 0.1
Oct 6.2	39.35 .16	56.1 0.1	28.96 .25	91.3 −0.1	18.79 .23	50.3 0.1	56.55 .18	30.9 0.0
16.2	39.19 .15	56.2 0.1	28.72 .24	90.7 0.5	18.57 .22	50.0 0.3	56.37 .17	30.9 +0.1
26.2	39.05 −.13	56.4 −0.3	28.48 −.22	89.7 −0.9	18.36 −.20	49.2 −1.0	56.21 −.15	30.8 +0.2
Nov 5.1	38.93 .10	56.7 0.4	28.28 .18	88.6 1.3	18.17 .17	48.1 1.4	56.08 .12	30.6 0.2
15.1	38.85 .06	57.1 0.5	28.11 .14	86.8 1.6	18.02 .13	46.5 1.8	55.98 .08	30.3 0.3
25.1	38.81 .02	57.7 0.6	27.99 .10	84.6 2.0	17.90 .09	44.5 2.1	55.92 .04	30.0 0.3
Dec. 5.1	38.83 +.03	58.3 0.7	27.91 −.05	82.2 2.3	17.83 −.05	42.2 2.4	55.91 +.01	29.6 0.4
15.0	38.89 +.08	59.1 −0.7	27.89 +.01	79.3 2.6	17.81 −.01	39.7 −2.6	55.95 +.06	29.2 +0.4
25.0	38.96 .11	59.8 0.8	27.92 .06	76.3 2.8	17.84 +.04	36.9 2.8	56.03 .11	28.9 0.4
35.0	39.09 +.15	60.6 −0.9	28.01 +.11	73.3 −3.1	17.92 +.08	34.1 −2.9	56.16 +.15	28.5 +0.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	50 Draconis. Right Ascension.	50 Draconis. Declination *North*.	σ Octantis. Right Ascension.	σ Octantis. Declination *South*.	ζ Aquilae. Right Ascension.	ζ Aquilae. Declination *North*.	d Sagittarii. Right Ascension.	d Sagittarii. Declination *South*.
	h m 18 49	° ′ +75 18	h 18	° ′ −89 15	h m 19 0	° ′ +13 42	h m 19 11	° ′ −19 8
	s	″	m s	″	s	″	s	″
Jan. 0.0	35.53 −.10	40.4 −3.4	53 24.4 + 3.6	38.5 +3.5	39.81 +.09	31.5 −2.0	35.97 +.11	16.9 0.0
10.0	35.53 +.08	36.9 3.4	53 29.4 6.6	35.0 3.4	39.92 .13	29.5 2.0	36.10 .15	16.9 0.0
20.0	35.69 .24	33.5 3.3	53 37.6 9.6	31.7 3.3	40.07 .17	27.5 1.9	36.27 .18	16.9 0.0
29.9	36.01 .40	30.2 3.1	53 48.6 12.3	28.5 3.0	40.25 .20	25.7 1.7	36.47 .21	16.9 +0.1
Feb. 8.9	36.49 .54	27.3 2.8	54 2.1 14.6	25.6 2.7	40.46 .23	24.1 1.5	36.70 .24	16.8 0.1
18.9	37.09 +.66	24.7 −2.3	54 17.6 +16.5	23.1 +2.3	40.70 +.25	22.7 −1.2	36.96 +.26	16.6 +0.2
28.8	37.81 .76	22.7 1.8	54 34.9 18.0	20.9 1.9	40.96 .27	21.7 0.8	37.23 .28	16.3 0.3
Mar. 10.8	38.61 .83	21.2 1.2	54 53.5 19.0	19.2 1.5	41.23 .28	21.1 −0.4	37.52 .30	16.0 0.4
20.8	39.46 .87	20.4 −0.5	55 12.9 19.7	18.0 1.0	41.52 .29	20.8 0.0	37.83 .31	15.5 0.5
30.8	40.34 .88	20.2 +0.1	55 32.8 19.9	17.3 +0.5	41.82 .30	21.1 +0.4	38.14 .32	14.8 0.6
Apr. 9.7	41.22 +.86	20.6 +0.8	55 52.6 +19.7	17.0 0.0	42.12 +.30	21.7 +0.8	38.46 +.32	14.1 +0.7
19.7	42.07 .82	21.8 1.4	56 12.1 19.1	17.2 −0.5	42.42 .30	22.7 1.2	38.79 .32	13.4 0.8
29.7	42.86 .75	23.5 2.0	56 30.8 18.2	17.9 1.0	42.71 .29	24.1 1.5	39.11 .32	12.5 0.9
May 9.7	43.57 .66	25.7 2.4	56 48.4 16.9	19.1 1.4	42.99 .27	25.8 1.8	39.42 .31	11.6 0.9
19.6	44.18 .55	28.4 2.8	57 4.5 15.2	20.7 1.8	43.26 .25	27.7 2.0	39.72 .29	10.8 0.9
29.6	44.66 +.42	31.4 +3.1	57 18.6 +13.2	22.7 −2.2	43.50 +.23	29.8 +2.2	40.00 +.27	9.9 +0.8
June 8.6	45.01 .28	34.7 3.4	57 30.6 10.8	25.0 2.5	43.72 .20	32.1 2.3	40.25 .24	9.2 0.7
18.5	45.22 +.14	38.1 3.5	57 40.2 8.2	27.5 2.7	43.90 .16	34.4 2.3	40.47 .21	8.5 0.6
28.4	45.29 −.01	41.6 3.5	57 47.1 5.5	30.3 2.8	44.05 .12	36.6 2.2	40.66 .17	7.9 0.5
July 8.4	45.20 .16	45.1 3.4	57 51.1 + 2.6	33.2 2.9	44.15 .08	38.8 2.1	40.80 .12	7.5 0.4
18.4	44.97 −.30	48.5 +3.3	57 52.2 − 0.5	36.2 −3.0	44.21 +.04	40.9 +2.0	40.90 +.08	7.2 +0.2
28.4	44.60 .44	51.8 3.1	57 50.2 3.5	39.1 2.9	44.23 .00	42.8 1.8	40.96 +.03	7.0 +0.1
Aug. 7.3	44.10 .56	54.7 2.8	57 45.3 6.4	41.9 2.7	44.21 −.04	44.5 1.6	40.96 −.01	6.9 0.0
17.3	43.47 .67	57.4 2.5	57 37.6 9.0	44.4 2.4	44.15 .08	46.0 1.3	40.92 .06	6.9 −0.1
27.3	42.74 .77	59.7 2.1	57 27.3 11.4	46.7 2.0	44.04 .12	47.3 1.1	40.84 .10	7.0 0.1
Sept. 6.2	41.93 −.85	61.6 +1.6	57 14.9 −13.4	48.5 −1.6	43.91 −.14	48.2 +0.8	40.73 −.13	7.1 −0.2
16.2	41.05 .90	63.0 1.2	57 0.7 14.8	49.8 1.1	43.75 .16	48.9 0.5	40.59 .15	7.3 0.2
26.2	40.12 .94	63.9 0.7	56 45.4 15.8	50.6 −0.5	43.58 .18	49.4 +0.2	40.43 .17	7.4 0.2
Oct. 6.2	39.17 .95	64.3 +0.1	56 29.4 16.1	50.8 +0.1	43 40 .18	49.5 0.0	40.26 .17	7.6 0.1
16.1	38.22 .93	64.2 −0.4	56 13.4 15.7	50.4 0.7	43.22 .17	49.3 −0.3	40.09 .16	7.7 0.1
26.1	37.31 −.89	63.5 −0.9	55 58.0 −14.7	49.4 +1.3	43.06 −.15	48.8 −0.6	39.93 −.15	7.8 −0.1
Nov. 5.1	36.44 .83	62.3 1.4	55 44.0 13.1	47.8 1.9	42.92 .13	48.1 0.9	39.79 .12	7.9 −0.1
15.1	35.65 .74	60.6 1.9	55 31.9 10.9	45.6 2.4	42.80 .10	47.0 1.2	39.69 .09	7.9 0.0
25.1	34.96 .63	58.4 2.4	55 22.3 8.3	43.0 2.8	42.72 .06	45.7 1.4	39.62 .05	7.9 0.0
Dec. 5.1	34.40 .50	55.8 2.8	55 15.4 5.3	40.0 3.1	42.68 −.02	44.1 1.6	39.59 −.01	8.0 0.0
15.1	33.97 −.35	52.8 - 3.1	55 11.7 − 2.1	36.7 +3.4	42.68 +.02	42.4 −1.8	39.60 +.04	8.0 0.0
25.0	33.70 .19	49.5 3.3	55 11.2 + 1.2	33.2 3.5	42.72 .06	40.5 1.9	39.66 .08	8.0 0.0
35.0	33.60 −.04	46.1 −3.4	55 14.0 + 4.5	29.7 +3.6	42.80 +.09	38.6 −2.0	39.76 +.12	8.0 0.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date	δ Draconis Right Ascension	δ Draconis Declination North	τ Draconis Right Ascension	τ Draconis Declination North	δ Aquilæ Right Ascension	δ Aquilæ Declination North	κ Aquilæ Right Ascension	κ Aquilæ Declination South
	h m 19 12	° ′ +67 28	h m 19 17	° ′ +73 9	h m 19 20	° ′ + 2 54	h m 19 31	° ′ − 7 15
	s	″	s	″	s	″	s	″
Jan 0.0	28.12 −.07	47.0 3.6	26.84 −.14	40.8 [illegible]	17.68 +.06	28.4 −1.9	20.47 +.06	28.8 0.7
10.0	28.11 +.04	43.5 3.6	26.7[illegible] .00	40.4 3.4	17.78 .11	27.0 1.3	20.57 .11	29.5 [illegible]
20.0	28.20 .15	40.1 3.4	26.83 +.14	42.9 3.4	17.92 .16	25.7 1.3	20.70 .13	30.2 0.6
29.9	28.40 .25	36.8 3.2	27.04 .28	39.6 3.0	18.09 .19	24.5 1.2	20.87 .18	30.8 0.5
Feb 8.9	28.70 .35	33.7 2.9	27.39 .41	36.5 [illegible]	18.29 .20	23.5 1.0	21.07 .21	31.3 0.4
18.9	29.05 +.45	31.0 −2.5	27.86 +.53	33.7 −2.[illegible]	18.52 +.24	22.6 0.7	21.29 +.22	31.6 0.2
28.9	29.58 .50	28.7 2.0	28.43 .66	31.4 2.0	18.76 .26	22.0 0.3	21.53 .25	31.8 0.0
Mar 10.8	30.09 .55	27.0 1.4	29.10 .70	29.7 1.5	19.03 .27	21.7 0.2	21.80 .27	31.7 +0.1
20.8	30.66 .59	26.0 0.8	29.83 .73	28.5 0.9	19.31 .28	21.7 +0.0	22.08 .29	31.4 0.4
30.8	31.26 .61	25.6 0.1	30.59 .77	28.0 −0.[illegible]	19.60 .29	22.1 0.5	22.37 .30	30.9 0.6
Apr 9.8	31.88 +.61	25.8 +0.6	31.38 +.78	28.1 +0.[illegible]	19.90 +.30	22.7 +0.8	22.68 +.30	30.1 +0.9
19.7	32.48 .59	26.7 1.1	32.15 .75	2[illegible] 1.1	20.20 .30	23.7 1.1	22.98 .31	29.2 1.1
29.7	33.06 .56	28.2 1.8	32.89 .71	[illegible]	20.49 .29	24.9 1.4	23.29 .30	28.0 1.3
May 9.7	33.60 .51	30.2 [illegible]	33.57 .64	[illegible]	20.79 .29	26.4 1.6	23.59 .30	26.7 1.5
19.6	34.07 .44	32.8 [illegible]	34.15 .54	34.7 2.6	21.07 .27	28.0 1.7	23.88 .28	25.4 1.6
29.6	34.48 + [illegible]	35.7 + [illegible]	34.70 + [illegible]	3[illegible]	21.35 + [illegible]	[illegible]	24.16 + [illegible]	24.0 +1.[illegible]
June 8.6	34.81 .28	39.0 3.3	35.10 [illegible]	[illegible]	21.56 [illegible]	31.6 1.8	24.41 .26	22.5 1.4
18.6	35.05 .19	42.4 3.[illegible]	35.39 .20	44.2 [illegible]	21.[illegible]	33.5 1.8	24.[illegible]	21.2 1.3
28.5	35.19 + [illegible]	46.2 3.[illegible]	35.55 +.09	47.7 [illegible]	21.[illegible]	35.3 1.[illegible]	24.8[illegible]	19.9 1.8
July 8.5	35.23 .00	49.6 3.4	35.58 .03	51.3 [illegible]	22.[illegible]	37.0 1.6	24.97 .13	18.7 1.2
18.5	35.18 [illegible]	53.1 [illegible]	35.49 .16	54.8 [illegible]	22.1[illegible]	38.[illegible]	25.[illegible]	17.6 +1.0
28.5	35.03 [illegible]	56.5 [illegible]	35.26 [illegible]	58.3 3.1	22.22 [illegible]	40.0 1.4	25.15 + [illegible]	16.7 0.8
Aug 7.4	34.78 [illegible]	[illegible]	34.91 [illegible]	61.5 3.[illegible]	22.2[illegible]	41.3 1.2	25.1[illegible]	15.9 0.7
17.4	34.44 [illegible]	62.6 [illegible]	34.45 [illegible]	64.4 [illegible]	22.1[illegible]	42.4 1.0	25.14 [illegible]	15.3 0.5
27.4	34.01 [illegible]	65.1 [illegible]	33.8[illegible]	67.1 [illegible]	22.1[illegible]	43.3 0.8	25.0[illegible]	14.9 0.4
Sept 6.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.0 [illegible]	24.[illegible]	14.6 +0.2
16.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.5 [illegible]	24.[illegible]	14.4 [illegible]
26.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.4 [illegible]
Oct. 6.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.4 [illegible]
16.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.5 [illegible]
26.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nov. 5.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dec 5.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Aquilæ Right Ascension.	γ Aquilæ Declination North.	α Aquilæ (Altair.) Right Ascension.	α Aquilæ (Altair.) Declination North.	ε Draconis Right Ascension.	ε Draconis Declination North.	β Aquilæ Right Ascension.	β Aquilæ Declination North.
	h m 19 41	° ′ +10 21	h m 19 45	° ′ + 8 35	h m 19 48	° ′ +69 59	h m 19 50	° ′ + 6 8
	s	″	s	″	s	″	s	″
Jan 0.0	21.10 +.06	40.0 −1.7	44.83 +.05	42.4 −1.6	26.83 −.19	82.0 −3.2	14.62 +.05	53.7 −1.4
10.0	21.17 .09	38.3 1.7	44.90 .09	40.8 1.6	26.70 −.06	78.8 3.3	14.69 .09	52.4 1.4
20.0	21.28 .13	36.6 1.6	45.01 .13	39.2 1.5	26.70 +.05	75.4 3.4	14.79 .12	50.9 1.4
30.0	21.43 .16	35.0 1.5	45.16 .16	37.8 1.4	26.81 .17	72.0 3.3	14.93 .15	49.6 1.3
Feb. 8.9	21.60 .19	33.6 1.3	45.33 .19	36.5 1.2	27.04 .29	68.8 3.1	15.10 .18	48.4 1.2
18.9	21.81 +.22	32.4 −1.1	45.53 +.22	35.4 −1.0	27.38 +.39	65.9 −2.8	15.30 +.21	47.4 −0.9
28.9	22.04 .24	31.5 0.7	45.76 .24	34.6 0.6	27.82 .48	63.3 2.3	15.52 .23	46.6 0.6
Mar 10.9	22.29 .26	31.0 −0.4	46.01 .26	34.1 −0.3	28.34 .56	61.3 1.8	15.77 .25	46.2 −0.3
20.8	22.56 .28	30.8 0.0	46.28 .28	34.0 0.0	28.94 .62	59.8 1.2	16.03 .27	46.2 +0.1
30.8	22.84 .29	31.0 +0.4	46.56 .29	34.2 +0.4	29.58 .66	58.9 −0.6	16.31 .29	46.5 0.4
Apr 9.8	23.14 +.30	31.6 +0.8	46.86 +.30	34.8 +0.8	30.25 +.67	58.7 +0.1	16.61 +.30	47.1 +0.8
19.7	23.44 .30	32.5 1.1	47.16 .30	35.8 1.1	30.93 .67	59.1 0.7	16.91 .30	48.0 1.1
29.7	23.74 .30	33.8 1.4	47.46 .30	37.1 1.4	31.60 .65	60.2 1.3	17.21 .30	49.3 1.4
May 9.7	24.04 .29	35.4 1.7	47.76 .29	38.7 1.7	32.23 .61	61.8 1.9	17.51 .30	50.8 1.6
19.7	24.33 .28	37.3 1.9	48.05 .28	40.5 1.9	32.82 .55	64.0 2.4	17.80 .29	52.6 1.8
29.6	24.60 +.26	39.3 +2.1	48.33 +.26	42.5 +2.0	33.33 +.48	66.6 +2.8	18.08 +.27	54.5 +1.9
June 8.6	24.85 .23	41.5 2.2	48.58 .24	44.6 2.1	33.77 .39	69.6 3.2	18.34 .24	56.5 2.0
18.6	25.07 .20	43.7 2.2	48.80 .21	46.8 2.1	34.12 .29	72.9 3.4	18.56 .21	58.5 2.0
28.6	25.25 .17	45.9 2.2	48.99 .17	48.9 2.1	34.36 .19	76.5 3.6	18.76 .18	60.5 2.0
July 8.5	25.40 .13	48.0 2.1	49.15 .13	51.0 2.0	34.49 +.08	80.1 3.6	18.92 .14	62.5 1.9
18.5	25.50 +.08	50.1 +2.0	49.26 +.09	53.0 +1.9	34.52 −.03	83.8 +3.6	19.03 +.10	64.3 +1.8
28.5	25.56 +.04	52.0 1.8	49.32 +.04	54.8 1.7	34.43 .14	87.4 3.5	19.10 .05	66.0 1.6
Aug 7.4	25.58 .00	53.7 1.6	49.35 .00	56.4 1.5	34.24 .24	90.8 3.3	19.13 +.01	67.5 1.4
17.4	25.55 −.05	55.2 1.4	49.33 −.04	57.9 1.3	33.94 .34	94.0 3.1	19.12 −.04	68.8 1.2
27.4	25.48 .09	56.5 1.1	49.27 .08	59.1 1.1	33.56 .43	97.0 2.8	19.06 .07	69.9 1.0
Sept 6.4	25.38 .12	57.5 +0.9	49.17 −.11	60.1 +0.9	33.08 .51	99.6 +2.4	18.97 −.10	70.8 +0.8
16.3	25.25 .14	58.3 0.6	49.04 .14	60.9 0.6	32.54 .57	101.8 2.0	18.84 .13	71.5 0.6
26.3	25.10 .16	58.8 0.4	48.90 .16	61.4 0.4	31.94 .62	103.6 1.5	18.70 .15	71.9 0.3
Oct 6.3	24.93 .17	59.1 +0.1	48.73 .17	61.6 +0.1	31.30 .65	104.9 1.0	18.54 .16	72.1 +0.1
16.3	24.76 .17	59.1 −0.1	48.56 .16	61.6 −0.1	30.64 .66	105.7 +0.5	18.38 .16	72.1 −0.2
26.2	24.60 .16	58.8 −0.4	48.41 −.15	61.4 0.4	29.98 .66	105.9 0.1	18.22 −.15	71.8 −0.4
Nov 5.2	24.45 .14	58.3 0.7	48.26 .14	60.9 0.6	29.33 .63	105.6 0.6	18.07 .14	71.4 0.6
15.2	24.34 .11	57.5 0.9	48.13 .11	60.2 0.8	28.72 .59	104.7 1.2	17.94 .11	70.7 0.8
25.2	24.24 .08	56.5 1.1	48.05 .08	59.3 1.0	28.10 .62	103.2 1.7	17.84 .08	69.8 1.0
Dec 5.1	24.16 .05	55.3 1.1	47.97 .05	58.2 1.2	27.47 .45	101.2 2.2	17.78 .05	68.7 1.2
15.1	24.13 .01	53.9 1.3	47.94 .02	56.8 1.4	27.27 .35	98.8 −2.6	17.75 −.01	67.5 −1.3
25.1	24.14 +.01	[illegible] 1.6	47.95 +.01	55.4 1.5	26.97 .25	95.9 3.0	17.76 +.03	66.2 1.4
35.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] .15	[illegible]	17.80 +.06	64.8 −1.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date	τ Aquilae Right Ascension	τ Aquilae Declination North	κ Cephei Right Ascension	κ Cephei Declination North	α² Capricorni Right Ascension	α² Capricorni Declination South	α Pavonis Right Ascension	α Pavonis Declination South
	h m 19 59	° ′ + 6 59	h m 20 12	° ′ +77 23	h m 20 12	° ′ −12 51	h m 20 17	° ′ −57 3
	s	″	s	″	s	″	s	″
Jan 0.1	5.95 +.02	10.5 −1.4	14.25 −.03	69.4 −2.9	19.98 +.01	56.5 +0.3	29.69 +.02	63.8 +2.0
10.0	6.02 .08	8.8 1.4	13.88 .07	66.2 3.1	20.04 .08	56.7 0.1	29.75 .09	61.5 2.4
20.0	6.11 .11	7.4 1.4	13.71 −.08	63.1 3.1	20.14 .10	56.9 0.1	29.88 .16	59.0 2.3
30.0	6.24 .16	6.1 1.3	13.72 +.11	59.8 3.2	20.27 .13	57.0 −0.1	30.07 .22	56.6 2.3
Feb 9.0	6.40 .18	4.8 1.1	13.92 .30	56.5 3.2	20.43 .18	57.0 0.0	30.32 .28	54.0 2.3
18.9	6.59 +.21	3.8 −0.9	14.31 +.47	53.4 2.9	20.62 +.22	56.9 +0.1	30.64 +.33	51.6 +2.4
28.9	6.81 .23	3.1 0.4	14.87 .63	51.7 2.5	20.84 .23	56.7 0.4	30.99 .38	49.3 2.3
Mar 10.9	7.05 .25	2.7 −0.1	15.57 .77	49.4 2.1	21.09 .25	56.2 0.5	31.39 .42	47.0 2.2
20.8	7.31 .27	2.6 +0.1	16.41 .88	47.6 1.5	21.35 .27	55.6 0.7	31.83 .46	45.0 2.0
30.8	7.58 .29	2.9 0.5	17.34 .96	45.3 0.9	21.63 .29	54.8 0.9	32.31 .48	43.2 1.7
Apr 9.8	7.88 +.30	3.5 +0.8	18.33 +1.00	44.7 0.3	21.93 +.30	53.8 +1.1	32.80 +.50	41.6 +1.4
19.8	8.18 .30	4.5 1.1	19.35 1.01	44.7 +0.3	22.24 .31	52.6 1.2	33.32 .50	40.3 1.1
29.7	8.48 .30	5.7 1.4	20.36 .99	45.4 1.0	22.55 .30	51.4 1.3	33.84 .51	39.4 0.6
May 9.7	8.78 .30	7.3 1.7	21.34 .94	46.7 1.6	22.87 .30	50.0 1.4	34.37 .50	38.7 0.3
19.7	9.08 .29	9.1 1.9	22.25 .88	48.5 2.1	23.18 .31	48.6 1.4	34.89 .51	38.4 +0.1
29.7	9.36 +.27	11.0 +2.0	23.07 [illegible]	[illegible]	23.49 +.30	47.2 +1.4	35.39 +.48	38.4 −0.0
June 8.6	9.62 .25	13.1 2.1	23.76 .63	55.6 2.9	23.77 .27	45.3 1.3	35.85 .44	38.8 0.4
18.6	9.86 .22	15.2 2.1	24.33 .49	[illegible] 3.0	24.03 .24	44.6 1.1	[illegible] .40	39.5 0.9
28.6	10.06 .18	17.2 2.0	24.74 .33	[illegible] 3.4	24.26 .21	43.4 1.1	[illegible] .34	40.5 1.0
July 8.5	10.22 .14	19.3 1.9	24.98 +.16	63.6 [illegible]	24.45 .17	42.4 0.9	[illegible] .28	41.9 1.3
18.5	[illegible] +.10	21.2 +1.8	[illegible] .00	67.3 +3.6	[illegible] +.13	41.6 +0.8	37.20 +.22	43.5 −1.7
28.5	10.41 .06	23.0 1.7	[illegible]	70.9 3.6	[illegible]	[illegible] 0.6	[illegible] .18	45.2 1.8
Aug 7.5	[illegible] +.01	24.6 [illegible]	24.72 .36	74.3 3.5	[illegible]	40.4 [illegible]	37.44 +.03	47.1 1.9
17.4	[illegible]	26.0 1.3	24.30 .49	77.9 3.3	[illegible]	[illegible]	37.45 −.03	[illegible] 1.9
27.4	[illegible]	27.1 1.1	23.74 .63	81.1 3.1	24.75 [illegible]	39.8 +0.1	37.38 [illegible]	51.0 1.9
Sept 6.4	[illegible]	[illegible]	23.04 −.78	84.0 +2.8	[illegible]	[illegible] 0.0	[illegible] .17	52.8 −1.7
16.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54.4 1.5
26.3	[illegible]	[illegible]	[illegible]	[illegible]	24.45 [illegible]	[illegible]	[illegible]	[illegible]
Oct 6.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16.3	9.74 [illegible]	[illegible]	[illegible]	[illegible]	24.14 [illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nov [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dec [illegible]	9.12 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Cygni. Right Ascension.	γ Cygni. Declination North.	π Capricorni. Right Ascension.	π Capricorni. Declination South.	ε Delphini. Right Ascension.	ε Delphini. Declination North.	Groombridge 3241. Right Ascension.	Groombridge 3241. Declination North.
	h m 20 18	° ′ +39 55	h m 20 21	° ′ −18 32	h m 20 28	° ′ +10 57	h m 20 30	° ′ +72 10
	s	″	s	″	s	″	s	″
Jan. 0.1	30.72 −.03	38.7 −2.6	25.20 +.04	64.3 +0.1	16.97 +.01	10.0 −1.5	22.33 −.33	64.5 −2.8
10.0	30.72 +.01	36.0 2.8	25.26 .08	64.2 0.1	17.00 .05	8.5 1.5	22.06 .21	61.5 3.1
20.0	30.76 .06	33.2 2.8	25.35 .11	64.0 0.2	17.07 .08	6.9 1.5	21.92 −.08	58.3 3.3
30.0	30.84 .11	30.3 2.8	25.48 .15	63.8 0.3	17.16 .12	5.4 1.4	21.90 +.05	55.0 3.3
Feb. 9.0	30.97 .16	27.6 2.6	25.64 .18	63.4 0.4	17.30 .15	4.1 1.3	22.02 .19	51.7 3.2
18.9	31.15 +.20	25.2 −2.3	25.82 +.21	62.9 +0.5	17.46 +.18	2.9 −1.1	22.27 +.31	48.6 −3.0
28.9	31.37 .24	23.0 1.9	26.04 .23	62.3 0.7	17.65 .21	2.0 0.8	22.65 .43	45.7 2.6
Mar. 10.9	31.62 .27	21.4 1.4	26.29 .26	61.5 0.8	17.87 .23	1.4 0.4	23.13 .53	43.3 2.2
20.9	31.91 .30	20.2 0.9	26.55 .28	60.7 1.0	18.11 .26	1.1 −0.1	23.71 .62	41.3 1.7
30.8	32.23 .33	19.5 −0.4	26.84 .30	59.6 1.1	18.37 .28	1.3 +0.3	24.37 .68	39.9 1.1
Apr. 9.8	32.56 +.34	19.4 +0.2	27.14 +.31	58.5 +1.2	18.66 +.29	1.8 +0.7	25.08 +.73	39.2 −0.5
19.8	32.91 .35	19.9 0.8	27.46 .32	57.3 1.3	18.95 .30	2.7 1.1	25.83 .75	39.0 +0.2
29.7	33.27 .36	21.0 1.3	27.78 .33	56.0 1.3	19.26 .31	3.9 1.4	26.58 .75	39.5 0.8
May 9.7	33.62 .35	22.6 1.8	28.10 .33	54.6 1.3	19.57 .31	5.5 1.7	27.33 .72	40.6 1.4
19.7	33.97 .34	24.6 2.2	28.43 .32	53.3 1.3	19.87 .30	7.3 1.9	28.03 .68	42.4 2.0
29.7	34.29 +.31	27.0 +2.6	28.74 +.31	52.1 +1.2	20.17 +.29	9.4 +2.1	28.68 +.61	44.6 +2.5
June 8.6	34.59 .28	29.8 2.9	29.04 .29	50.9 1.1	20.44 .27	11.5 2.2	29.25 .53	47.3 2.9
18.6	34.86 .24	32.8 3.1	29.31 .26	49.8 1.0	20.70 .24	13.8 2.3	29.74 .43	50.3 3.2
28.6	35.08 .20	36.0 3.2	29.56 .23	48.9 0.8	20.92 .21	16.1 2.3	30.11 .32	53.7 3.4
July 8.6	35.25 .15	39.3 3.3	29.76 .19	48.2 0.6	21.11 .17	18.4 2.2	30.38 .21	57.2 3.6
18.5	35.38 +.10	42.6 +3.3	29.93 +.14	47.6 +0.5	21.26 +.13	20.6 +2.1	30.53 +.09	60.9 +3.7
28.5	35.45 +.04	45.8 3.2	30.05 .10	47.2 0.3	21.37 .08	22.6 2.0	30.56 −.03	64.6 3.7
Aug. 7.5	35.47 −.01	48.9 3.0	30.12 +.05	47.0 +0.1	21.43 +.04	24.5 1.8	30.46 .15	68.2 3.6
17.4	35.43 .06	51.8 2.8	30.14 .00	47.0 0.0	21.44 −.01	26.2 1.6	30.25 .26	71.8 3.4
27.4	35.35 .11	54.5 2.5	30.12 −.04	47.1 −0.2	21.41 .05	27.7 1.4	29.93 .37	75.2 3.2
Sept. 6.4	35.22 −.15	56.8 +2.2	30.06 −.08	47.3 −0.3	21.35 −.08	28.9 +1.1	29.51 −.47	78.2 +2.9
16.4	35.05 .18	58.8 1.8	29.96 .11	47.6 0.3	21.25 .11	29.9 0.8	28.99 .56	81.0 2.6
26.3	34.84 .21	60.4 1.4	29.83 .14	47.9 0.3	21.12 .14	30.6 0.6	28.40 .62	83.3 2.1
Oct. 6.3	34.62 .23	61.6 0.9	29.68 .15	48.3 0.3	20.97 .15	31.1 0.3	27.74 .68	85.2 1.7
16.3	34.39 .24	62.3 +0.5	29.52 .16	48.7 0.4	20.81 .16	31.3 +0.1	27.05 .71	86.7 1.2
26.2	34.15 −.23	62.5 0.0	29.36 −.16	49.0 −0.3	20.65 −.16	31.2 −0.2	26.33 −.72	87.6 +0.6
Nov. 5.2	33.92 .22	62.3 −0.5	29.21 .15	49.3 0.3	20.50 .15	30.9 0.5	25.61 .72	87.9 +0.1
15.2	33.70 .20	61.6 0.9	29.08 .12	49.6 0.2	20.36 .13	30.3 0.7	24.90 .69	87.7 −0.5
25.2	33.50 .18	60.4 1.4	28.97 .09	49.7 0.2	20.24 .11	29.5 0.9	24.23 .65	86.9 1.1
Dec. 5.1	33.34 .14	58.8 1.8	28.89 .06	49.9 −0.1	20.15 .08	28.4 1.1	23.61 .58	85.5 1.7
15.1	33.22 −.10	56.8 −2.2	28.84 −.03	49.9 0.0	20.09 .05	27.2 −1.3	23.07 .50	83.5 −2.2
25.1	33.14 .06	54.5 2.5	28.84 +.01	49.9 0.0	20.06 −.01	25.8 1.4	22.62 .40	81.2 2.6
35.1	33.10 −.02	51.9 −2.7	28.87 +.05	49.9 +0.1	20.07 +.02	24.3 −1.5	22.28 −.30	78.4 −2.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date		α Cygni Right Ascension	α Cygni Declination North	μ Aquarii Right Ascension	μ Aquarii Declination South	12 Year Cat 1879 Right Ascension	12 Year Cat 1879 Declination North	ν Cygni Right Ascension	ν Cygni Declination North
		h m 20 37	° ′ +44 54	h m 20 47	° ′ 9 21	h m 20 52	° ′ +80 9	h m 20 53	° ′ +40 45
		s	″	s	″	s	″	s	″
Jan	0.1	53.81 .07	48.0 2.6	5.59 +.00	76.2 -0.4	6.81 .70	67.0 -2.5	18.77 -.07	79.0 -2.4
	10.1	53.77 .04	45.3 2.8	5.62 .0[illegible]	76.6 0.4	6.13 .5[illegible]	64.3 2.9	18.72 .00	76.4 2.6
	20.0	53.77 +.03	42.4 2.9	5.68 .06	77.0 0.3	5.67 .36	61.3 3.1	18.72 +.00	73.7 2.7
	30.0	53.83 .06	39.5 2.9	5.77 .11	77.2 0.2	5.44 .00	58.1 3.0	18.76 .07	71.0 2.7
Feb	9.0	53.93 .13	36.7 2.[illegible]	5.89 .14	77.4 0.1	5.46 .14	54.8 3.0	18.85 .11	68.3 2.6
	19.0	54.09 +.18	34.0 2.5	6.05 +.17	77.3 +0.1	5.73 +.38	51.6 -3.1	18.99 +.16	65.7 2.4
	28.9	54.29 .21	31.7 2.2	6.23 .20	77.1 0.[illegible]	6.22 .61	48.6 2.8	19.17 .20	63.3 2.1
Mar	10.9	54.54 .27	29.7 1.[illegible]	6.44 .22	76.7 0.5	6.94 .81	46.0 2.4	19.39 .24	61.6 1.7
	20.9	54.83 .3[illegible]	28.2 1.2	6.68 .25	76.1 0.[illegible]	7.85 .99	43.8 2.0	19.65 .28	60.2 1.2
	30.8	55.15 .3[illegible]	27.3 0.6	6.94 .27	75.2 0.9	8.91 1.12	42.1 1.4	19.95 .31	59.2 0.6
Apr	9.8	55.50 +.37	27.0 0.[illegible]	7.22 +.29	74.2 +1.1	10.08 +1.22	40.9 -0.8	20.27 +.33	58.9 0.1
	19.8	55.87 .3[illegible]	27.2 +0.[illegible]	7.51 .30	73.0 1.3	11.34 1.28	40.4 0.2	20.62 .35	59.1 +0.5
	29.8	56.25 .39	28.0 1.1	7.82 .31	71.6 1.5	12.63 1.30	40.5 +0.4	20.97 .36	59.8 1.0
May	9.7	56.65 .40	29.4 1.6	8.14 .32	70.1 1.6	13.91 1.27	41.2 1.0	21.34 .37	61.2 1.5
	19.7	57.05 .40	31.3 2.1	8.45 .3[illegible]	68.4 1.7	15.13 1.16	42.5 1.6	21.70 .36	62.9 2.0
	29.7	57.45 +.38	33.6 +2.5	8.[illegible] +.3[illegible]	66.8 +1.8	16.27 +1.08	44.4 +2.1	22.05 +.34	65.1 +2.4
June	8.6	57.[illegible] .3[illegible]	36.[illegible] 2.9	9.[illegible] .29	65.2 1.8	17.29 .95	46.7 2.6	22.38 .31	67.7 2.7
	18.6	58.[illegible] .3[illegible]	39.4 3.1	9.34 .27	63.6 1.5	18.16 .78	49.5 3.0	22.68 .28	70.6 3.0
	28.6	58.29 .23	42.6 3.3	9.59 .24	62.2 1.4	18.85 .60	52.7 3.3	22.94 .24	73.7 3.2
July	8.6	58.43 .18	46.[illegible] 3.4	9.81 .20	60.8 1.2	19.36 .40	56.0 3.5	23.16 .19	77.0 3.3
	18.5	58.58 +.10	49.4 +3.4	9.99 +.16	59.7 +1.[illegible]	19.66 +.20	59.6 +3.6	23.32 +.14	80.3 +3.3
	28.5	58.67 .06	52.8 3.3	10.12 .11	58.7 0.9	19.75 .00	63.3 3.7	23.44 .09	83.6 3.3
Aug	7.5	58.7[illegible] +.0[illegible]	56.1 3.2	10.21 .07	57.9 0.7	19.63 .20	67.0 3.7	23.50 +.03	86.8 3.2
	17.5	58.78 .[illegible]	59.2 3.0	10.2[illegible] +.02	57.3 0.5	19.31 .40	70.6 3.6	23.51 .02	89.9 3.0
	27.4	58.7[illegible]	62.2 2.8	10.26 .02	56.9 0.3	18.79 .60	74.2 3.4	23.46 .07	92.8 2.7
Sept	6.4	58.68 .13	64.8 +2.5	10.22 .06	56.6 +0.1	18.[illegible] .79	77.5 +3.2	23.37 .11	95.4 +2.4
	16.4	58.53 .19	67.2 2.1	10.14 .09	56.5	17.[illegible] .97	80.5 2.9	23.23 .16	97.7 2.1
	26.3	58.33 .22	69.0 1.7	10.03 .12	56.[illegible]	16.20 1.12	83.2 2.5	23.[illegible] .19	99.6 1.7
Oct	6.3	58.[illegible] .26	70.5 1.2	9.8[illegible] .16	56.[illegible]	15.[illegible] 1.19	85.5 2.1	2[illegible] .22	101.1 1.3
	16.3	57.[illegible] .29	71.5 0.5	9.7[illegible] .1[illegible]	57.0	13.82 1.27	87.4 1.[illegible]	22.64 .26	102.2 0.9
	26.3	[illegible]	72.1 +0.[illegible]	[illegible]	[illegible]	12.52 1.31	88.[illegible] +1.1	22.41 .25	102.8 +0.4
Nov	5.2	[illegible]	[illegible]	[illegible]	[illegible]	11.[illegible] 1.30	[illegible]	22.18 .25	103.0 0.1
	15.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 1.28	[illegible]	21.92 .22	102.7 0.6
	25.2	[illegible]	[illegible]	[illegible]	57.[illegible]	[illegible] 1.2[illegible]	[illegible]	21.[illegible] .19	101.9 1.0
Dec	5.2	57.44	[illegible]	[illegible]	[illegible]	7.[illegible] 1.18	85.4 1.8	21.57 .1[illegible]	100.6 1.5
	15.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 2.0	21.42 .13	98.9 -1.9
	25.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.31 .09	[illegible] 2.0
	35.1	[illegible]	[illegible]	[illegible]	[illegible]	4.41 .9[illegible]	[illegible] 2.5	21.23 .0[illegible]	94.5 -2.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.		61¹ Cygni.		ζ Cygni.		ε Cephei.		ι Pegasi.	
		Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*	Right Ascension.	Declination *North.*
		h m 21 2	° ′ +38 14	h m 21 8	° ′ +29 48	h m 21 16	° ′ +62 8	h m 21 17	° ′ +19 21
		s	″	s	″	s	″	s	″
Jan.	0.1	15.67 −.06	39.2 −2.2	32.29 −.05	19.6 −2.0	4.80 −.24	66.9 −2.4	18.78 −.04	51.9 −1.6
	10.1	15.63 −.02	36.9 2.4	32.25 −.01	17.5 2.2	4.60 .17	64.3 2.8	18.76 −.01	50.2 1.7
	20.0	15.63 +.03	34.4 2.5	32.26 +.02	15.2 2.3	4.47 .09	61.4 3.0	18.77 +.03	48.4 1.8
	30.0	15.68 .07	31.8 2.5	32.30 .06	12.9 2.3	4.41 −.01	58.3 3.1	18.81 .06	46.6 1.8
Feb.	9.0	15.77 .11	29.3 2.4	32.38 .10	10.7 2.2	4.44 +.07	55.1 3.1	18.89 .10	44.9 1.7
	19.0	15.90 +.15	27.0 −2.2	32.49 +.14	8.6 −2.0	4.55 +.15	52.0 −3.0	19.00 +.13	43.3 −1.5
	28.9	16.08 .20	24.9 1.9	32.65 .18	6.8 1.7	4.74 .23	49.1 2.8	19.14 .16	42.0 1.2
Mar.	10.9	16.30 .24	23.2 1.5	32.84 .21	5.3 1.3	5.01 .30	46.5 2.4	19.32 .19	41.0 0.9
	20.9	16.55 .28	21.8 1.1	33.07 .24	4.2 0.9	5.35 .37	44.4 1.9	19.53 .22	40.3 0.5
	30.9	16.84 .31	21.0 −0.6	33.33 .27	3.5 −0.4	5.75 .43	42.7 1.4	19.77 .25	40.0 −0.1
Apr.	9.8	17.16 +.33	20.8 0.0	33.61 +.30	3.4 +0.1	6.21 +.48	41.6 −0.8	20.04 +.28	40.2 +0.4
	19.8	17.51 .35	21.0 +0.5	33.92 .32	3.7 0.6	6.71 .51	41.1 −0.2	20.33 .30	40.8 0.8
	29.8	17.87 .36	21.8 1.1	34.25 .33	4.5 1.1	7.23 .53	41.2 +0.4	20.63 .31	41.8 1.2
May	9.7	18.23 .37	23.2 1.6	34.58 .33	5.8 1.5	7.76 .53	41.9 1.0	20.95 .32	43.2 1.6
	19.7	18.60 .36	25.0 2.0	34.92 .33	7.6 1.9	8.29 .52	43.3 1.6	21.27 .32	44.9 1.9
	29.7	18.96 +.35	27.2 +2.4	35.24 +.32	9.7 +2.3	8.80 +.49	45.1 +2.1	21.59 +.31	46.9 +2.2
June	8.7	19.29 .32	29.9 2.8	35.56 .30	12.1 2.6	9.28 .45	47.5 2.6	21.89 .30	49.2 2.4
	18.6	19.60 .29	32.8 3.0	35.85 .28	14.8 2.8	9.71 .40	50.3 3.0	22.18 .28	51.7 2.5
	28.6	19.88 .25	35.9 3.2	36.11 .24	17.7 2.9	10.09 .34	53.4 3.3	22.44 .25	54.3 2.6
July	8.6	20.11 .21	39.2 3.3	36.34 .20	20.6 3.0	10.40 .27	56.9 3.5	22.67 .21	56.9 2.6
	18.6	20.30 +.16	42.5 +3.3	36.52 +.16	23.6 +3.1	10.63 +.20	60.4 +3.6	22.86 +.17	59.6 +2.6
	28.5	20.44 .11	45.8 3.3	36.66 .11	26.6 2.9	10.79 .12	64.2 3.7	23.01 .13	62.1 2.5
Aug.	7.5	20.52 .06	49.1 3.2	36.74 .06	29.4 2.8	10.87 +.04	67.9 3.7	23.12 .08	64.5 2.3
	17.5	20.55 +.01	52.2 3.0	36.78 +.02	32.2 2.6	10.86 −.04	71.5 3.6	23.18 +.04	66.8 2.1
	27.4	20.53 −.04	55.1 2.8	36.78 −.03	34.6 2.4	10.78 .12	75.0 3.4	23.19 −.01	68.8 1.9
Sept.	6.4	20.47 −.09	57.8 +2.5	36.72 −.07	36.9 +2.1	10.62 −.19	78.4 +3.2	23.16 −.05	70.6 +1.7
	16.4	20.36 .13	60.1 2.2	36.63 .11	38.9 1.8	10.39 .26	81.4 2.9	23.09 .08	72.1 1.4
	26.4	20.21 .16	62.1 1.8	36.51 .14	40.5 1.5	10.11 .31	84.1 2.5	22.99 .11	73.4 1.1
Oct.	6.3	20.04 .18	63.7 1.4	36.35 .16	41.8 1.1	9.77 .36	86.4 2.1	22.86 .13	74.3 0.8
	16.3	19.85 .20	64.9 1.0	36.18 .18	42.7 0.7	9.40 .39	88.3 1.6	22.72 .15	75.0 0.5
	26.3	19.64 −.20	65.7 +0.5	36.00 −.18	43.2 +0.3	8.99 −.41	89.7 +1.1	22.57 −.16	75.3 +0.2
Nov.	5.3	19.44 .20	66.0 +0.1	35.82 .18	43.3 −0.1	8.58 .42	90.5 +0.5	22.41 .15	75.3 −0.2
	15.2	19.24 .19	65.8 −0.4	35.64 .17	43.1 0.5	8.16 .41	90.8 0.0	22.26 .15	75.0 0.5
	25.2	19.05 .17	65.2 0.8	35.48 .15	42.4 0.9	7.76 .39	90.5 −0.6	22.12 .13	74.4 0.7
Dec.	5.2	18.89 .15	64.1 1.3	35.33 .13	41.3 1.3	7.37 .37	89.6 1.2	22.00 .11	73.4 1.0
	15.1	18.76 −.12	62.6 −1.7	35.21 −.10	39.9 −1.6	7.03 −.32	88.2 −1.7	21.90 −.09	72.2 −1.3
	25.1	18.65 .08	60.8 2.0	35.12 .07	38.2 1.9	6.73 .27	86.2 2.2	21.82 .06	70.8 1.5
	35.1	18.59 −.05	58.6 −2.3	35.07 −.04	36.1 −2.1	6.48 −.22	83.8 −2.5	21.78 −.03	69.2 −1.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Aquarii. Right Ascension.	β Aquarii. Declination South.	β Cephei. Right Ascension.	β Cephei. Declination North.	ξ Aquarii. Right Ascension.	ξ Aquarii. Declination South.	ε Pegasi. Right Ascension.	ε Pegasi. Declination North.
	h m 21 26	° ′ − 6 1	h m 21 27	° ′ +70 6	h m 21 32	° ′ − 8 18	h m 21 39	° ′ + 9 24
	s	″	s	″	s	″	s	″
Jan. 0.1	8.00 .00	30.8 0.4	16.17 −.30	42.6 −2.3	15.99 .00	61.6 0.4	7.33 .03	11.0 −2.0
10.1	8.00 +.00	31.3 0.3	15.87 .30	40.1 2.7	15.98 .00	62.0 0.4	7.30 −.01	9.8 2.0
20.1	8.02 .04	31.7 0.4	15.57 .29	37.3 3.0	16.00 +.03	62.4 0.3	7.30 +.01	8.6 2.0
30.0	8.07 .07	32.1 0.3	15.42 .09	34.2 3.2	16.04 .06	62.6 0.1	7.33 .05	7.4 2.0
Feb 9.0	8.15 .10	32.4 0.2	15.39 +.05	31.0 3.3	16.12 .09	62.7 0.0	7.39 .08	6.2 2.1
19.0	8.27 +.13	32.4 0.0	15.47 +.14	27.8 −3.1	16.23 +.12	62.6 +0.2	7.49 +.11	5.2 −0.9
28.9	8.41 .16	32.3 +0.2	15.67 .26	24.8 2.9	16.37 .15	62.3 0.4	7.62 .14	4.5 0.6
Mar 10.9	8.59 .19	32.0 0.4	15.99 .36	22.0 2.6	16.54 .18	61.9 0.6	7.77 .17	3.9 −0.3
20.9	8.79 .22	31.4 0.7	16.40 .46	19.6 2.2	16.74 .21	61.2 0.8	7.96 .20	3.7 0.0
30.9	9.02 .24	30.6 0.9	16.91 .54	17.6 1.7	16.96 .24	60.3 1.0	8.17 .23	3.8 +0.3
Apr 9.8	9.27 +.27	29.6 +1.2	17.50 +.61	16.3 −1.1	17.22 +.26	59.1 +1.2	8.42 +.26	4.3 +0.6
19.8	9.55 .29	28.3 1.4	18.13 .66	15.4 −0.5	17.49 .28	57.8 1.4	8.69 .28	5.1 1.0
29.8	9.85 .30	26.8 1.6	18.81 .69	15.3 +0.1	17.79 .30	56.3 1.6	8.98 .30	6.3 1.3
May 9.8	10.16 .31	25.2 1.7	19.51 .70	15.7 0.8	18.10 .31	54.6 1.7	9.29 .31	7.7 1.6
19.7	10.47 .32	23.5 1.8	20.20 .68	16.8 1.4	18.41 .30	52.8 1.8	9.60 .30	9.5 2.0
29.7	10.79 +.31	21.6 +1.9	20.87 +.64	18.4 +1.9	18.73 +.30	51.0 +1.8	9.92 +.31	11.4 +2.2
June 8.7	11.10 .30	19.8 1.9	21.50 .60	20.6 2.4	19.05 .32	49.2 1.8	10.23 .30	13.5 2.2
18.6	11.40 .28	18.0 1.8	22.07 .55	23.2 2.8	19.35 .29	47.5 1.7	10.52 .28	15.8 2.3
28.6	11.66 .25	16.3 1.7	22.56 .43	26.2 3.0	19.62 .26	45.8 1.6	10.80 .26	18.1 2.3
July 8.6	11.91 .23	14.6 1.5	22.97 .36	29.5 3.4	19.88 .23	44.3 1.5	11.04 .23	20.3 2.2
18.6	12.12 +.19	13.2 +1.4	23.29 +.26	33.0 +3.6	20.09 +.19	42.9 +1.3	11.26 +.19	22.6 +2.0
28.5	12.28 .14	11.9 1.1	23.48 .16	36.7 3.7	20.26 .15	41.7 1.1	11.43 .15	24.6 2.0
Aug 7.5	12.41 .10	10.8 1.0	23.58 +.05	40.5 3.8	20.40 .11	40.8 0.9	11.56 .11	26.6 1.9
17.5	12.47 .06	10.0 0.8	23.58 −.06	44.1 3.7	20.49 .07	40.0 0.6	11.64 .06	28.4 1.7
27.5	12.53 +.02	9.3 0.6	23.46 .16	48.0 3.6	20.53 +.02	39.5 0.4	11.68 +.02	29.9 1.5
Sept. 6.5	12.52 −.02	8.9 +0.4	23.25 −.26	51.5 +3.4	20.53 −.02	39.2 +0.2	11.68 −.02	31.3 +1.2
16.4	12.47 .07	8.6 +0.1	22.94 .35	54.7 3.1	20.49 .06	39.0 +0.1	11.64 .06	32.4 1.0
26.4	12.39 .09	8.5 0.0	22.55 .41	57.7 2.8	20.41 .09	39.1 −0.1	11.57 .09	33.2 0.8
Oct. 6.3	12.29 .11	8.6 0.2	22.09 .49	60.3 2.4	20.31 .11	39.2 0.0	11.47 .11	33.8 0.5
16.3	12.17 .13	8.8 0.2	21.57 .54	62.4 1.9	20.19 .13	39.5 0.3	11.35 .13	34.2 +0.2
26.3	12.03 .16	9.1 0.4	21.00 .58	64.1 +1.4	20.06 .13	39.9 −0.4	11.22 .14	34.3 0.0
Nov 5.3	11.87 .16	9.4 0.3	20.41 .60	65.3 0.9	19.92 .14	40.3 0.4	11.08 .14	34.2 −0.2
15.2	11.72 .15	9.9 0.5	19.81 .60	66.0 0.3	19.79 .13	40.8 0.5	10.94 .13	33.9 0.4
25.2	11.64 .11	10.4 0.6	19.22 .58	66.2 −0.1	19.67 .12	41.3 0.5	10.82 .12	33.4 0.6
Dec 5.2	11.53 .09	11.0 0.6	18.64 .56	65.2 0.9	19.56 .10	41.8 0.5	10.70 .10	32.6 0.8
15.2	11.45 .08	11.5 0.5	18.10 −.50	64.0 −1.3	19.48 −.07	42.3 0.5	10.61 −.08	31.7 −1.0
25.1	11.41 .04	12.1 0.6	17.63 .46	62.3 2.0	19.42 .06	42.7 0.3	10.54 .06	30.7 1.1
35.1	11.37 −.04	12.7 0.5	17.23 .40	60.2 −2.1	19.39 −.03	43.2 −0.4	10.49 .03	29.5 −1.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	11 Cephei. Right Ascension.	11 Cephei. Declination North.	μ Capricorni. Right Ascension.	μ Capricorni. Declination South.	79 Draconis. Right Ascension.	79 Draconis. Declination North.	α Aquarii. Right Ascension.	α Aquarii. Declination South.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	21 40	+70 49	21 47	−14 1	21 51	+73 12	22 0	− 0 48
	s	″	s	″	s	″	s	″
Jan. 0.1	21.25 −.43	87.4 −2.1	40.77 −.04	76.5 −0.2	30.58 −.53	69.0 −2.0	29.51 −.05	73.6 −0.7
10.1	20.86 .34	85.0 2.5	40.75 −.01	76.6 −0.1	30.10 .43	66.8 2.4	29.47 −.02	74.4 0.7
20.1	20.56 .24	82.3 2.9	40.75 +.02	76.6 +0.1	29.72 .32	64.2 2.8	29.46 .00	75.1 0.7
30.0	20.37 .13	79.3 3.1	40.79 .05	76.5 0.2	29.46 .20	61.2 3.0	29.47 +.03	75.7 0.6
Feb. 9.0	20.30 −.01	76.1 3.2	40.85 .08	76.2 0.4	29.32 −.06	58.1 3.2	29.52 .06	76.2 0.4
19.0	20.35 +.11	72.9 3.1	40.95 +.11	75.7 +0.5	29.33 +.08	54.9 −3.1	29.60 +.09	76.5 −0.2
Mar. 1.0	20.51 .23	69.9 3.0	41.08 .14	75.1 0.7	29.48 .22	51.8 3.0	29.70 .12	76.7 0.0
10.9	20.80 .34	67.0 2.7	41.23 .17	74.2 0.9	29.76 .35	48.9 2.8	29.84 .15	76.6 +0.2
20.9	21.20 .45	64.5 2.3	41.42 .20	73.2 1.1	30.17 .47	46.2 2.4	30.01 .19	76.3 0.5
30.9	21.70 .54	62.4 1.8	41.64 .23	72.0 1.3	30.70 .58	44.0 1.9	30.21 .22	75.6 0.8
Apr. 9.9	22.28 +.62	60.9 −1.2	41.89 +.26	70.6 +1.5	31.34 +.67	42.3 −1.4	30.44 +.24	74.7 +1.0
19.8	22.93 .67	59.9 −0.6	42.16 .28	69.1 1.6	32.05 .74	41.2 0.8	30.70 .27	73.6 1.3
29.8	23.63 .71	59.6 0.0	42.46 .30	67.4 1.7	32.82 .79	40.6 −0.2	30.98 .29	72.2 1.5
May 9.8	24.34 .72	59.9 +0.6	42.77 .32	65.6 1.8	33.62 .81	40.7 +0.4	31.28 .30	70.6 1.7
19.7	25.07 .71	60.8 1.2	43.09 .33	63.8 1.8	34.43 .80	41.4 1.0	31.59 .31	68.8 1.9
29.7	25.77 +.68	62.2 +1.7	43.42 +.33	62.0 +1.8	35.23 +.78	42.7 +1.6	31.91 +.32	66.9 +2.0
June 8.7	26.44 .64	64.2 2.2	43.74 .32	60.3 1.7	35.99 .73	44.6 2.1	32.23 .31	64.9 2.0
18.7	27.05 .57	66.7 2.7	44.05 .30	58.6 1.6	36.69 .67	46.9 2.5	32.53 .30	62.9 2.0
28.6	27.58 .49	69.6 3.1	44.34 .28	57.1 1.4	37.31 .56	49.6 2.9	32.82 .28	60.9 1.9
July 8.6	28.04 .40	72.8 3.4	44.61 .25	55.8 1.2	37.83 .47	52.8 3.3	33.08 .25	59.0 1.8
18.6	28.39 +.30	76.3 +3.6	44.84 +.21	54.7 +1.0	38.26 +.36	56.2 +3.5	33.31 +.21	57.2 +1.7
28.6	28.64 .20	80.0 3.7	45.04 .17	53.8 0.8	38.56 .25	59.8 3.7	33.51 .17	55.5 1.5
Aug. 7.5	28.78 +.09	83.8 3.8	45.19 .13	53.1 0.6	38.75 +.13	63.6 3.8	33.66 .13	54.1 1.3
17.5	28.81 −.02	87.6 3.8	45.29 .08	52.7 0.3	38.81 .00	67.4 3.8	33.77 .09	52.9 1.1
27.5	28.73 .13	91.3 3.7	45.35 +.04	52.4 +0.1	38.75 −.12	71.2 3.7	33.84 .05	51.9 0.9
Sept. 6.4	28.55 −.23	94.9 +3.5	45.37 .00	52.4 −0.1	38.57 −.23	74.8 +3.6	33.86 +.01	51.1 +0.7
16.4	28.27 .33	98.3 3.2	45.34 −.04	52.6 0.2	38.28 .34	78.3 3.4	33.85 −.03	50.5 0.5
26.4	27.90 .41	101.4 2.9	45.28 .07	52.9 0.4	37.89 .44	81.6 3.1	33.80 .06	50.1 0.3
Oct. 6.4	27.45 .48	104.1 2.5	45.19 .10	53.4 0.5	37.41 .53	84.5 2.7	33.72 .09	50.0 +0.1
16.3	26.94 .54	106.4 2.1	45.07 .12	53.9 0.5	36.84 .60	87.0 2.3	33.62 .11	50.0 −0.1
26.3	26.38 −.58	108.3 +1.6	44.94 −.13	54.4 −0.5	36.22 −.65	89.0 +1.8	33.50 −.12	50.2 −0.2
Nov. 5.3	25.78 .61	109.7 1.1	44.81 .14	54.9 0.5	35.54 .69	90.6 1.3	33.37 .13	50.5 0.4
15.3	25.17 .62	110.4 +0.5	44.67 .13	55.5 0.5	34.84 .71	91.6 0.7	33.24 .13	50.9 0.5
25.2	24.55 .61	110.7 −0.1	44.55 .12	56.0 0.5	34.13 .70	92.0 +0.1	33.12 .12	51.4 0.6
Dec. 5.2	23.95 .58	110.3 0.7	44.44 .10	56.4 0.4	33.44 .68	91.8 −0.5	33.01 .10	52.0 0.6
15.2	23.38 −.54	109.3 −1.3	44.34 −.08	56.8 −0.3	32.77 −.64	91.0 −1.1	32.92 −.08	52.7 −0.7
25.1	22.87 .48	107.7 1.8	44.28 .06	57.1 0.2	32.16 .58	89.6 1.7	32.84 .06	53.4 0.7
35.1	22.43 −.41	105.6 −2.3	44.23 −.03	57.2 −0.1	31.62 −.50	87.7 −2.1	32.79 −.04	54.2 −0.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date		α Gruis Right Ascension	α Gruis Declination South	θ Aquarii Right Ascension	θ Aquarii Declination South	π Aquarii Right Ascension	π Aquarii Declination North	η Aquarii Right Ascension	η Aquarii Declination South
		h m 22 1	° ′ −47 27	h m 22 11	° ′ − 8 17	h m 22 20	° ′ + 0 51	h m 22 30	° ′ − 0 38
		s	″	s	″	s	″	s	″
Jan	0.1	44.55 −.11	46.4 +1.3	23.90 −.03	48.7 0.4	0.99 .06	17.4 −0.7	3.83 −.06	53.9 0.7
	10.1	44.47 .06	44.9 1.6	23.88 −.03	49.1 0.3	0.94 .04	16.6 0.7	3.78 .04	54.6 0.7
	20.1	44.43 −.02	43.1 1.9	23.86 .02	49.4 0.0	0.91 .03	15.9 0.7	3.74 −.02	55.2 0.6
	30.1	44.44 +.05	41.1 2.2	23.87 +.02	49.5 −0.1	0.91 +.02	15.2 0.6	3.73 .00	55.8 0.5
Feb	9.0	44.49 .08	38.8 2.4	23.91 .05	49.6 +0.1	0.93 .04	14.7 0.5	3.75 +.05	56.2 0.4
	19.0	44.59 +.12	36.4 +2.5	23.96 +.08	49.4 +0.2	0.99 +.07	14.3 −0.3	3.80 +.06	56.6 0.1
Mar	1.0	44.73 .16	33.8 2.6	24.08 .11	49.1 0.4	1.07 .10	14.0 −0.1	3.87 .09	56.7 0.0
	11.0	44.92 .22	31.2 2.7	24.21 .14	48.6 0.7	1.19 .13	14.0 +0.1	3.98 .13	56.6 +0.2
	20.9	45.15 .25	28.5 2.7	24.37 .18	47.8 0.9	1.34 .17	14.3 0.4	4.12 .16	56.2 0.5
	30.9	45.42 .29	25.9 2.6	24.56 .21	46.9 1.1	1.53 .20	14.8 0.7	4.30 .19	55.6 0.8
Apr	9.9	45.74 +.33	23.4 +2.5	24.79 +.24	45.6 +1.3	1.74 +.21	15.6 +1.0	4.51 +.22	54.7 +1.0
	19.8	46.08 .36	20.9 2.1	25.04 .27	44.2 1.5	1.99 .26	16.7 1.2	4.75 .25	53.6 1.3
	29.8	46.46 .39	18.7 2.1	25.32 .29	42.6 1.7	2.26 .28	18.1 1.5	5.01 .28	52.2 1.5
May	9.8	46.87 .42	16.7 1.9	25.62 .31	40.8 1.8	2.55 .31	19.7 1.7	5.30 .30	50.6 1.7
	19.8	47.29 .43	14.9 1.6	25.93 .32	38.9 1.9	2.86 .32	21.5 1.9	5.61 .31	48.8 1.9
	29.7	47.72 +.43	13.3 +1.3	26.25 +.32	37.0 +1.9	3.18 +.32	23.4 +2.0	5.93 +.31	46.8 +2.0
June	8.7	48.15 .42	12.4 0.9	26.57 .32	35.1 1.9	3.50 .31	25.4 2.1	6.24 .32	44.8 2.0
	18.7	48.57 .41	11.7 0.5	26.89 .31	33.2 1.8	3.81 .30	27.5 2.1	6.56 .31	42.7 2.0
	28.7	48.96 .38	11.3 +0.1	27.18 .29	31.4 1.7	4.10 .28	29.6 2.0	6.86 .29	40.7 2.0
July	8.6	49.33 .34	11.4 −0.2	27.46 .26	29.8 1.6	4.38 .26	31.6 1.9	7.14 .27	38.7 1.9
	18.6	49.65 +.30	11.8 −0.6	27.70 +.21	28.3 +1.4	4.62 +.23	33.4 +1.8	7.39 +.24	36.9 +1.8
	28.6	49.92 .24	12.6 1.0	27.91 .19	27.0 1.2	4.83 .19	35.2 1.7	7.61 .20	35.2 1.6
Aug	7.5	50.13 .18	13.8 1.3	28.08 .15	26.0 0.9	5.00 .15	36.7 1.5	7.79 .16	33.7 1.4
	17.5	50.29 .12	15.2 1.5	28.20 .10	25.2 0.7	5.13 .11	38.1 1.3	7.93 .12	32.4 1.2
	27.5	50.37 +.06	16.8 1.7	28.28 .06	24.6 0.5	5.22 .06	39.2 1.0	8.02 .07	31.4 0.9
Sept	6.5	50.40 .00	18.6 1.9	28.32 +.02	24.2 +0.3	5.26 +.02	40.1 +0.8	8.06 +.03	30.6 +0.7
	16.4	50.36 .06	20.5 1.9	28.32 .02	24.1 +0.1	5.26 .02	40.8 0.6	8.09 .00	30.0 0.5
	26.4	50.27 .10	22.3 1.8	28.28 .06	24.1 0.1	5.23 .05	41.3 0.4	8.07 −.04	29.6 0.3
Oct	6.4	50.13 .16	24.1 1.7	28.20 .08	24.3 0.3	5.16 .08	41.5 +0.2	8.01 .07	29.4 +0.1
	16.4	49.95 .19	25.7 1.5	28.11 .1[illegible]	24.6 0.4	5.08 .1[illegible]	41.6 0.0	7.93 .09	29.4 −0.1
	26.3	49.74 .2[illegible]	27.0 1.2	27.99 .12	25.1 0.6	4.97 .11	41.5 −0.2	7.83 .10	29.6 −0.2
Nov	5.3	49.52 .22	28.0 0.9	27.87 .13	25.6 0.6	4.85 .12	41.2 0.3	7.72 .11	29.9 0.4
	15.3	49.29 .22	28.7 0.6	27.74 .13	26.2 0.7	4.73 .12	40.8 0.4	7.60 .12	30.3 0.5
	25.2	49.07 .21	29.0 −0.2	27.62 .12	26.7 0.5	4.61 .12	40.3 0.5	7.48 .12	30.8 0.6
Dec	5.2	48.87 .19	28.9 +0.[illegible]	27.51 .11	27.2 0.4	4.50 .11	39.7 0.6	7.37 .11	31.4 0.6
	15.2	48.69 .16	28.4 +0.7	27.41 −.09	27.8 0.3	4.40 −.09	39.0 0.7	7.27 .10	32.1 0.7
	25.2	48.54 .13	27.5 1.1	27.33 .07	28.3 0.2	4.31 .08	38.3 0.7	7.18 .08	32.8 0.7
	35.1	48.43 .09	26.2 +1.4	27.27 .0[illegible]	[illegible]	4.25 .06	37.6 0.7	7.10 −.08	33.5 0.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

[illegible]	[illegible]	[illegible]	ζ Pegasi. Right Ascension.	ζ Pegasi. Declination North.	ι Cephei. Right Ascension.	ι Cephei. Declination North.	λ Aquarii. Right Ascension.	λ Aquarii. Declination South.
		° ′	h m	° ′	h m	° ′	h m	° ′
[illegible]	[illegible]	[illegible] 41	22 36	+10 17	22 45	+65 39	22 47	− 8 7
		″	s	″	s	″	s	″
[illegible]	[illegible]	[illegible]	19.44 −.08	41.1 −1.0	58.73 −.39	49.1 −2.4	14.66 −.08	40.9 −0.4
[illegible]	[illegible]	[illegible]	19.38 .05	40.1 1.1	58.37 .34	47.5 1.9	14.60 .06	41.3 0.3
[illegible]	[illegible]	[illegible]	19.33 .03	39.0 1.1	58.05 .28	45.3 2.3	14.55 .05	41.6 0.2
[illegible]	[illegible]	[illegible]	19.31 −.01	37.9 1.1	57.81 .22	42.8 2.7	14.53 −.02	41.8 −0.1
[illegible]	[illegible]	[illegible]	19.32 +.02	36.8 1.0	57.63 .13	40.0 2.9	14.53 +.02	41.8 +0.1
[illegible]	[illegible]	[illegible]	19.35 +.05	35.9 −0.9	57.55 −.04	37.0 −3.0	14.56 +.05	41.6 +0.3
[illegible]	[illegible]	[illegible]	19.42 .08	35.1 0.7	57.55 +.05	34.0 2.9	14.62 .08	41.3 0.5
[illegible]	[illegible]	[illegible]	19.52 .12	34.5 0.4	57.65 .15	31.1 2.8	14.71 .12	40.7 0.7
[illegible]	[illegible]	[illegible]	19.65 .15	34.3 −0.1	57.85 .25	28.3 2.6	14.84 .14	39.9 0.9
[illegible]	[illegible]	[illegible]	19.82 .19	34.3 +0.2	58.14 .34	25.9 2.2	15.00 .18	38.8 1.2
[illegible]	[illegible]	[illegible]	20.03 +.22	34.6 +0.5	58.52 +.42	23.9 −1.8	15.20 +.21	37.6 +1.4
[illegible]	[illegible]	[illegible]	20.27 .25	35.3 0.8	58.97 .48	22.4 1.3	15.43 .24	36.1 1.6
[illegible]	[illegible]	[illegible]	20.53 .28	36.3 1.2	59.49 .54	21.4 0.7	15.68 .27	34.4 1.7
[illegible]	[illegible]	[illegible]	20.82 .30	37.6 1.5	60.05 .58	21.0 −0.1	15.97 .29	32.6 1.9
[illegible]	[illegible]	[illegible]	21.13 .31	39.3 1.7	60.65 .60	21.1 +0.5	16.27 .31	30.7 2.0
[illegible]	[illegible]	[illegible]	21.45 +.33	41.1 +1.9	61.26 +.62	21.9 +1.1	16.59 +.32	28.7 +2.0
[illegible]	[illegible]	[illegible]	21.77 .32	43.2 2.1	61.87 .60	23.2 1.6	16.91 .32	26.6 2.0
[illegible]	[illegible]	[illegible]	22.09 .31	45.3 2.2	62.46 .57	25.1 2.1	17.23 .31	24.7 1.9
[illegible]	[illegible]	[illegible]	[illegible] .29	[illegible] 2.1	63.01 .53	27.4 2.5	17.54 .30	22.8 1.8
[illegible]	[illegible]	[illegible]	[illegible] .27	[illegible] 2.1	63.51 .47	30.1 2.9	17.83 .28	21.0 1.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	63.95 +.41	33.2 +3.2	18.10 +.25	19.4 +1.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.32 .33	36.6 3.3	18.33 .22	18.1 1.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.62 .25	40.2 3.6	18.53 .18	16.9 1.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.83 .17	43.9 3.7	18.69 .14	16.1 0.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] +.06	47.6 3.7	18.81 .09	15.4 0.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51.3 +3.7	18.88 +.05	15.0 +0.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] −.08	[illegible] 3.5	18.91 +.02	14.8 +0.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] .16	58.3 3.3	18.90 −.02	14.9 −0.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	61.5 3.0	18.86 .05	15.1 0.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	64.4 2.7	18.79 .08	15.5 0.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.70 −.10	16.0 −0.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.59 .11	16.5 0.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.48 .11	17.1 0.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.37 .11	17.7 0.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.25 .12	18.3 0.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.14 .10	18.9 −0.6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18.05 .09	19.5 0.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] −.07	19.9 −0.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date	α Piscis Australis (Fomalhaut) Right Ascension	α Piscis Australis (Fomalhaut) Declination South	α Pegasi (Markab) Right Ascension	α Pegasi (Markab) Declination North	ο Cephei Right Ascension	ο Cephei Declination North	θ Piscium Right Ascension	θ Piscium Declination North
	h m 22 51	° ′ −30 9	h m 22 59	° ′ +14 39	h m 23 14	° ′ +67 32	h m 23 22	° ′ + 5 48
	s	″	s	″	s	″	s	″
Jan 0.2	57.87 −.09	73.0 +0.5	57.81 −.09	9.8 −1.1	22.09 .44	73.4 −1.0	44.81 −.09	51.1 −0.8
10.2	57.78 .07	72.5 0.6	57.73 .07	8.7 1.1	21.66 .41	72.1 1.3	44.73 .08	50.3 0.8
20.1	57.72 .05	71.8 0.9	57.66 .05	7.5 1.0	21.28 .35	70.3 2.0	44.65 .06	49.5 0.8
30.1	57.68 −.02	70.8 1.1	57.62 .03	6.3 1.1	20.96 .29	68.1 2.4	44.60 .04	48.7 0.7
Feb 9.1	57.67 +.01	69.6 1.4	57.60 .01	5.1 1.0	20.72 .20	65.5 2.7	44.57 −.02	48.0 0.6
19.0	57.70 +.04	68.1 +1.6	57.61 +.02	4.0 −1.1	20.54 −.11	62.6 −2.9	44.56 +.01	47.4 −0.5
Mar 1.0	57.76 .06	66.4 1.8	57.65 .06	3.0 0.9	20.48 −.01	59.7 3.0	44.58 .04	47.0 0.4
11.0	57.85 .11	64.5 2.0	57.73 .09	2.2 0.7	20.51 +.09	56.7 3.0	44.63 .07	46.7 −0.0
20.9	57.99 .15	62.4 2.1	57.84 .13	1.6 0.4	20.66 .20	53.8 2.9	44.72 .11	46.7 +0.1
30.9	58.16 .19	60.2 2.2	57.99 .17	1.4 0.1	20.91 .30	51.2 2.4	44.85 .15	46.9 0.4
Apr 9.9	58.37 +.23	57.9 +2.3	58.18 +.21	1.5 +0.2	21.25 +.39	49.0 −2.0	45.01 +.18	47.4 +0.7
19.9	58.62 .26	55.6 2.3	58.40 .24	1.9 0.6	21.69 .48	47.2 1.6	45.21 .22	48.2 1.0
29.8	58.89 .29	53.3 2.2	58.66 .27	2.7 1.0	22.20 .55	45.8 1.1	45.44 .25	49.3 1.3
May 9.8	59.20 .32	51.0 2.0	58.94 .29	3.8 1.3	22.78 .60	45.0 −0.5	45.71 .28	50.7 1.5
19.8	59.53 .34	48.8 2.1	59.25 .32	5.3 1.6	23.41 .65	44.8 +0.1	46.00 .30	52.4 1.9
29.8	59.88 +.35	46.7 +2.0	59.57 +.32	7.0 +1.8	24.05 +.65	45.1 +0.6	46.31 +.31	54.2 +1.9
June 8.7	60.23 .36	44.9 1.8	59.89 .33	8.9 2.0	24.71 .66	46.1 1.2	46.63 .32	56.2 2.0
18.7	60.59 .35	43.2 1.6	60.22 .32	11.1 2.0	25.36 .64	47.5 1.7	46.95 .31	58.3 2.1
28.7	60.93 .34	41.9 1.0	60.55 .31	13.4 2.1	25.99 .60	49.5 2.2	47.26 .31	60.4 2.0
July 8.6	61.26 .32	40.9 0.9	60.85 .29	15.7 2.4	26.57 .55	52.0 2.6	47.57 .29	62.6 2.1
18.6	61.56 +.28	40.2 +0.5	61.10 +.26	18.1 +2.1	27.09 +.49	54.8 +3.0	47.85 +.27	64.6 +2.0
28.6	61.83 .25	39.8 +0.1	61.34 .22	20.4 2.3	27.55 .42	58.0 3.3	48.10 .24	66.6 1.9
Aug 7.6	62.06 .21	39.8 0.1	61.54 .18	22.7 2.2	27.93 .34	61.4 3.3	48.32 .20	68.5 1.8
17.6	62.23 .16	40.2 0.4	61.72 .16	24.7 2.0	28.23 .26	65.0 3.6	48.51 .17	70.2 1.6
27.5	62.37 .11	40.8 0.8	61.83 .10	26.7 1.8	28.44 .16	68.7 3.7	48.65 .13	71.6 1.4
Sept 6.5	62.45 +.06	41.7 +1.0	61.91 +.06	28.4 +1.6	28.56 +.06	72.4 +3.7	48.76 +.09	72.9 +1.1
16.5	62.49 +.02	42.8 1.1	61.95 +.02	30.1 1.6	28.57 .04	76.1 3.6	48.82 .03	73.9 0.9
26.4	62.47 −.04	44.1 1.3	61.95 −.02	31.2 1.1	28.53 .09	79.7 3.5	48.85 +.01	74.7 0.7
Oct 6.4	62.42 .07	45.4 1.4	61.92 .05	32.3 0.9	28.40 .17	83.1 3.3	48.84 −.02	75.2 0.4
16.4	62.34 .10	46.8 1.5	61.86 .07	33.0 0.6	28.19 .24	86.2 3.0	48.81 .05	75.5 +0.2
26.4	62.23 −.12	48.1 −1.0	61.78 −.09	33.6 +0.4	27.91 −.31	89.0 +2.6	48.74 −.07	75.7 0.0
Nov 5.3	62.09 .14	49.3 1.1	61.68 .10	33.8 +0.0	27.57 .36	91.4 2.2	48.66 .09	75.6 −0.1
15.3	61.95 .16	50.3 0.9	61.56 .11	33.7 0.1	27.18 .41	93.3 1.7	48.57 .10	75.4 0.3
25.3	61.80 .15	51.1 0.7	61.45 .12	33.6 0.3	26.76 .44	94.7 1.1	48.46 .10	75.0 0.5
Dec 5.3	61.66 .14	51.7 0.4	61.33 .12	33.2 0.5	26.31 .46	95.6 +0.4	48.36 .12	74.5 0.6
15.2	61.52 .13	52.0 −0.1	61.22 −.11	32.6 0.7	25.84 .47	95.8 −0.1	48.25 −.11	73.8 −0.7
25.2	61.40 .11	52.0 +0.1	61.12 .10	31.7 0.9	25.37 .46	95.4 0.6	48.15 .09	73.1 0.7
35.2	61.30 .09	51.8 +0.4	61.02 −.09	30.7 1.1	24.91 −.45	94.5 −1.0	48.09 −.05	72.4 −0.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.		ι Piscium.		γ Cephei.		Groombridge 4163.		ω Piscium.	
		Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
		h m 23 34	° ′ + 5 4	h m 23 35	° ′ +77 3	h m 23 49	° ′ +73 50	h m 23 54	° ′ + 6 17
		s	″	s	″	s	″	s	″
Jan	0.2	39.46 −.09	9.1 −0.7	3.99− .86	49.4 −0.5	47.49 −.67	36.8 −0.4	1.74 −.10	40.3 −0.7
	10.2	39.37 .08	8.3 0.8	3.16 .81	48.5 1.2	46.84 .64	36.0 1.0	1.65 .09	39.5 0.7
	20.2	39.29 .07	7.6 0.8	2.38 .73	47.1 1.7	46.22 .59	34.7 1.6	1.56 .08	38.7 0.7
	30.1	39.23 .05	6.8 0.7	1.70 .62	45.1 2.2	45.66 .51	32.9 2.1	1.48 .07	38.0 0.7
Feb	9.1	39.19 −.03	6.1 0.6	1.15 .49	42.7 2.6	45.20 .41	30.6 2.5	1.43 .05	37.3 0.6
	19.1	39.17 .00	5.6 −0.5	0.73− .33	39.9 −2.9	44.85 −.29	28.0 −2.8	1.39 −.02	36.7 −0.5
Mar.	1.1	39.18 +.03	5.2 0.3	0.48− .16	37.0 3.0	44.62 .16	25.1 2.9	1.38 +.01	36.3 0.4
	11.0	39.22 .06	4.9 −0.1	0.41+ .02	33.9 3.0	44.53 −.02	22.1 3.0	1.40 .04	36.0 −0.2
	21.0	39.30 .10	4.9 +0.1	0.53 .20	30.9 3.0	44.58 +.13	19.1 2.9	1.46 .08	35.9 +0.1
	30.9	39.42 .13	5.2 0.4	0.82 .38	28.0 2.8	44.79 .28	16.2 2.7	1.56 .12	36.1 0.3
Apr.	9.9	39.57 +.17	5.8 +0.7	1.29+ .55	25.4 −2.4	45.14 +.42	13.6 −2.5	1.69 +.15	36.6 +0.6
	19.9	39.76 .21	6.6 1.0	1.93 .70	23.1 2.0	45.62 .54	11.3 2.1	1.86 .19	37.3 0.9
	29.9	39.99 .24	7.7 1.3	2.69 .83	21.4 1.5	46.22 .65	9.5 1.6	2.08 .23	38.4 1.2
May	9.9	40.25 .27	9.1 1.5	3.58 .93	20.1 1.0	46.93 .74	8.1 1.1	2.32 .26	39.7 1.4
	19.9	40.53 .29	10.7 1.7	4.55 1.00	19.4 −0.4	47.71 .81	7.3 −0.5	2.60 .29	41.2 1.6
	29.8	40.84 +.31	12.5 +1.9	5.57+1.04	19.2 +0.1	48.54 +.85	7.0 0.0	2.90 +.31	43.0 +1.8
June	8.8	41.15 .32	14.5 2.0	6.63 1.05	19.6 0.7	49.41 .87	7.3 +0.6	3.21 .32	44.9 2.0
	18.7	41.48 .32	16.5 2.1	7.67 1.03	20.6 1.3	50.29 .87	8.2 1.2	3.53 .32	46.9 2.1
	28.7	41.80 .31	18.7 2.1	8.69 .99	22.2 1.8	51.14 .84	9.7 1.7	3.85 .32	49.0 2.1
July	8.7	42.11 .30	20.8 2.1	9.65 .92	24.3 2.3	51.96 .79	11.6 2.2	4.17 .31	51.2 2.1
	18.7	42.39 +.28	22.8 +2.0	10.53+ .83	26.8 +2.7	52.73 +.72	14.0 +2.6	4.47 +.29	53.2 +2.0
	28.6	42.66 .25	24.8 1.9	11.31 .72	29.7 3.1	53.41 .64	16.8 3.0	4.74 .26	55.2 1.9
Aug.	7.6	42.89 .21	26.6 1.7	11.97 .60	32.9 3.4	54.01 .55	19.9 3.3	4.98 .23	57.1 1.8
	17.6	43.08 .18	28.2 1.5	12.51 .47	36.4 3.6	54.51 .44	23.3 3.5	5.20 .19	58.8 1.6
	27.6	43.24 .14	29.6 1.3	12.90 .33	40.1 3.7	54.90 .33	26.9 3.7	5.37 .15	60.3 1.4
Sept.	6.5	43.36 +.10	30.8 +1.1	13.16+ .18	43.9 +3.8	55.18 +.22	30.6 +3.8	5.51 +.12	61.5 +1.2
	16.5	43.43 .06	31.8 0.8	13.27+ .04	47.8 3.8	55.34 +.10	34.4 3.8	5.60 .08	62.6 0.9
	26.5	43.47 +.02	32.5 0.6	13.24− .10	51.5 3.7	55.38 −.01	38.2 3.7	5.66 .04	63.4 0.7
Oct.	6.4	43.48 −.01	33.0 0.4	13.06 .24	55.2 3.6	55.31 .12	41.8 3.6	5.69 +.01	64.0 0.5
	16.4	43.45 .04	33.3 +0.2	12.75 .37	58.7 3.3	55.13 .23	45.3 3.4	5.68 −.02	64.3 0.3
	26.4	43.40 −.06	33.4 0.0	12.31− .50	61.9 +3.0	54.85 −.33	48.5 +3.1	5.65 −.04	64.5 +0.1
Nov	5.4	43.33 .08	33.2 −0.2	11.75 .61	64.8 2.6	54.47 .43	51.4 2.7	5.59 .06	64.4 −0.1
	15.3	43.25 .09	33.0 0.3	11.10 .70	67.2 2.2	54.00 .51	53.9 2.2	5.51 .08	64.2 0.3
	25.3	43.15 .10	32.6 0.5	10.35 .78	69.1 1.6	53.45 .57	55.9 1.7	5.43 .09	63.9 0.4
Dec	5.3	43.05 .10	32.0 0.6	9.54 .83	70.4 1.1	52.85 .62	57.3 1.2	5.33 .10	63.4 0.5
	15.3	42.94 .10	31.4 0.7	8.69− .86	71.2 +0.4	52.20 −.66	58.2 +0.6	5.23 −.10	62.8 −0.6
	25.2	42.84 .10	30.7 0.7	7.82 .86	71.3 −0.2	51.54 .68	58.5 0.0	5.12 .10	62.1 0.7
	35.2	42.74 −.09	30.0 −0.9	6.96− .84	70.9 −0.7	50.87 −.66	58.1 −0.6	5.02 −.10	61.4 −0.7

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date	ι Cassiop	22 Androm	ν Androm	ι Ceti	6 Urs Min S P	44 Piscium	σ Androm	α Cassiop
	° ′ 31 25	° ′ 44 30	° ′ 53 47	° ′ 99 24	° ′ 358 16	° ′ 88 38	° ′ 56 51	° ′ 42 17
	h m 0 3	h m 0 4	h m 0 12	h m 0 14	h m 0 13	h m 0 20	h m 0 31	h m 0 38
	″	″	″	″	″	″	″	″
Dec 30.8	40.52 −.31	58.05	57.04 −.13	11.25	99.90	7.93	23.15	59.36
Jan 9.8	40.22	57.35	56.89	11.16	[illegible]	7.82	22.98	59.15
19.8	39.93	57.67	56.75	11.06	114.56	7.73	22.84	58.93
29.8	39.67	57.50	56.61	10.95	121.25	7.66	22.70	58.71
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Aug 26.6	45.35	62.16	60.84	14.67	57.40	11.31	26.70	63.25
Sept 5.5	45.57	62.34	61.02	14.82	54.56	11.47	26.90	63.48
15.5	45.73	62.47	61.15	14.95	52.71	11.60	27.06	63.67
25.5	45.81	62.55	61.23	15.02	51.91	11.68	27.16	63.81
Oct 5.4	45.84	62.59	61.28	15.08	52.21	11.73	27.23	63.89
15.4	45.80	62.58	61.30	15.08	53.61	11.76	27.27	63.94
25.4	45.71	62.54	61.28	15.07	56.10	11.75	27.27	63.94
Nov 4.4	45.59	62.45	61.23	15.03	59.67	11.71	27.25	63.90
14.4	45.41	62.33	61.14	14.97	64.25	11.66	27.19	63.81
24.3	45.18	62.19	61.02	14.87	69.73	11.58	27.10	63.70
Dec 4.3	44.94	62.03	60.90	14.78	75.99	11.49	27.00	63.55
14.3	44.66	61.85	60.76	14.66	82.96	11.39	26.88	63.39
24.3	44.36	61.66	60.61	14.52	90.14	11.30	26.75	63.20
34.3	44.06	61.46	60.46	14.40	97.5	11.19	26.59	63.00

Mean Solar Date	δ Piscium	γ Cassiop	μ Androm	43 Cephei	α Tucanæ	ƒ Piscium	ε Octantis S P	ν Androm
	° ′ 82 59	° ′ 29 50	° ′ 52 4	° ′ 4 18	° ′ 159 25	° ′ 86 55	° ′ 184 45	° ′ 49 7
	h m 0 43	h m 0 50	h m 0 51	h m 0 54	h m 1 12	h m 1 12	h m 1 24	h m 1 30
	″	″	″	″	″	″	″	″
Dec 30.8	20.36	23.65	2.61	56.20	18.93	30.02	11.40	45.99
Jan 9.8	20.56	22.33	2.45	54.17	18.17	29.91	14.34	45.83
19.8	20.75	29.01	2.33	51.46	17.83	29.80	17.28	45.65
29.8	20.94	28.70	2.22	48.51	17.50	29.66	20.11	45.45
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept 5.6	24.14	34.38	6.15	55.84	22.69	33.10	0.74	49.96
15.6	24.42	34.63	6.36	57.15	23.03	33.29	[illegible]	[illegible]
25.5	24.60	34.81	6.48	58.36	23.27	33.42	[illegible]	[illegible]
Oct 5.5	[illegible]	[illegible]	6.59	59.20	23.40	33.53	[illegible]	[illegible]
15.5	24.72	35.08	6.64	58.77	23.43	33.60	7.44	50.18
25.5	[illegible]	[illegible]	[illegible]	58.47	23.36	33.65	[illegible]	[illegible]
Nov 4.4	[illegible]	[illegible]	[illegible]	[illegible]	23.15	33.67	[illegible]	[illegible]
14.4	[illegible]	[illegible]	[illegible]	[illegible]	22.86	33.69	[illegible]	[illegible]
24.4	[illegible]	[illegible]	[illegible]	[illegible]	22.43	33.62	[illegible]	[illegible]
Dec 4.3	[illegible]	[illegible]	[illegible]	55.14	[illegible]	[illegible]	[illegible]	[illegible]
14.3	[illegible]	[illegible]	[illegible]	[illegible]	21.54	33.42	[illegible]	50.10
24.3	[illegible]	[illegible]	[illegible]	[illegible]	21.08	33.33	[illegible]	[illegible]
34.3	[illegible]	[illegible]	[illegible]	[illegible]	20.63	[illegible]	[illegible]	[illegible]

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	π Piscium	ν Piscium	ζ Ceti	γ Androm.	β Trianguli	4 Urs. Min. S. P.	γ Trianguli	67 Ceti
	° ′ 78 23	° ′ 85 2	° ′ 100 51	° ′ 48 10	° ′ 55 30	° ′ 348 2	° ′ 56 38	° ′ 96 54
	h m 1 31	h m 1 36	h m 1 46	h m 1 57	h m 2 3	h m 2 9	h m 2 11	h m 2 11
	s	s	s	s	s	s	s	s
([illegible])	39.26 −.10	5.30 −.10	23.77 −.11	35.65 −.16	26.02 −.13	13.79+1.00	12.63 −.11	51.99 −.08
Jan 6.3	39.15 .11	5.20 .11	23.66 .11	35.49 .17	25.89 .14	14.83 1.07	12.51 .13	51.90 .10
16.3	39.04 .11	5.09 .12	23.54 .12	35.32 .18	25.74 .15	15.93 1.11	12.36 .15	51.78 .12
26.2	38.91 .13	4.96 .12	23.41 .13	35.14 .19	25.59 .16	17.05 1.11	12.20 .16	51.65 .13
Feb 5.2	38.80 .11	4.85 .11	23.27 .13	34.94 .18	25.42 .17	18.15 1.09	12.04 .16	51.51 .14
15.2	38.68 −.12	4.75 −.10	23.15 −.12	34.77 −.17	25.26 −.16	19.19+1.00	11.87 −.17	51.38 −.13
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept 25.6	42.62 +.14	8.56 +.14	26.81 +.15	39.42 +.22	29.56 +.19	10.67− .60	16.08 +.20	54.88 +.17
Oct 5.5	42.75 .11	8.69 .12	26.95 .12	39.62 .18	29.74 .17	10.15 .44	16.27 .18	55.04 .14
15.5	42.84 .08	8.78 .08	27.06 .09	39.78 .14	29.90 .14	9.79 .27	16.44 .15	55.17 .11
25.5	42.91 +.06	8.85 +.06	27.13 +.06	39.91 +.09	30.02 +.10	9.61− .10	16.57 +.11	55.26 +.08
Nov 4.5	42.95 +.03	8.90 +.03	27.17 +.03	39.97 .05	30.10 .06	9.59+ .08	16.65 .08	55.33 .05
14.4	42.96 .00	8.91 .00	27.19 .00	40.01 +.02	30.15 +.03	9.76 .27	16.72 +.04	55.37 +.02
24.4	42.94 −.03	8.90 −.03	27.17 −.02	40.02 −.02	30.16 −.01	10.13 .45	16.73 .00	55.38 .00
Dec 4.4	42.90 .05	8.85 .05	27.14 .05	39.98 .06	30.14 .04	10.66 .61	16.72 −.03	55.37 −.03
14.3	42.84 −.07	8.80 −.07	27.08 −.08	39.90 −.10	30.09 −.08	11.36+ .77	16.68 −.07	55.32 −.06
24.3	42.75 .09	8.70 .09	26.98 .10	39.79 .13	29.99 .11	12.21 .91	16.59 .10	55.24 .08
34.3	42.65 −.10	8.61 −.10	26.88 −.11	39.64 −.16	29.87 −.13	13.19+1.05	16.48 −.12	55.15 −.09

Mean Solar Date.	δ Hydri.	μ Hydri.	δ Ceti.	θ Persei.	φ Arietis.	47 Cephei.	ε Arietis.	β Persei. (Algol.)
	° ′ 159 8	° ′ 169 34	° ′ 90 7	° ′ 41 12	° ′ 75 21	° ′ 10 59	° ′ 69 4	° ′ 49 26
	h m 2 19	h m 2 33	h m 2 34	h m 2 37	h m 2 45	h m 2 52	h m 2 53	h m 3 1
	s	s	s	s	s	s	s	s
(Dec 30.3)	57.83 −.53	55.63 1.14	13.58 −.09	11.39 −.15	49.76 −.08	27.24− .71	20.80 −.08	29.61 −.07
Jan 9.3	57.28 .56	54.45 1.20	13.48 .11	11.23 .18	49.67 .10	26.48 .82	20.71 .10	29.51 .12
19.3	56.70 .58	53.19 1.26	13.38 .12	11.04 .20	49.56 .12	25.61 .92	20.60 .12	29.36 .16
29.2	56.11 .58	51.92 1.26	13.24 .13	10.82 .22	49.43 .13	24.64 .98	20.47 .13	29.19 .18
Feb 8.2	55.55 .57	50.67 1.23	13.11 .14	10.60 .24	49.29 .14	23.65 1.01	20.33 .14	29.00 .19
18.2	54.98 −.57	49.45 1.18	12.97 −.14	10.35 −.25	49.15 −.14	22.62−1.04	20.18 −.15	28.80 −.20
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sept 25.6	59.90 +.35	56.42+ .67	16.32 +.20	15.11 +.28	52.60 +.23	34.59+ .95	23.68 +.22	32.85 +.29
Oct 5.6	60.20 .25	57.00 .48	16.51 .17	15.38 .25	52.81 .19	35.48 .82	23.89 .20	33.12 .25
15.5	60.40 .15	57.39 .28	16.66 .14	15.62 .22	52.98 .16	36.23 .67	24.08 .18	33.35 .22
25.5	60.49 +.04	57.56 .09	16.79 +.11	15.81 +.17	53.13 +.13	36.82+ .50	24.26 +.15	33.56 +.19
Nov 4.5	60.48 [illegible]	57.49 .18	16.88 .08	15.96 .12	53.25 .10	37.24 .33	24.39 .11	33.73 .15
14.5	60.35 [illegible]	57.20 [illegible]	16.95 [illegible]	16.05 .08	53.33 .07	37.48+ .16	24.48 .08	33.85 .12
24.4	60.12 [illegible]	[illegible]	[illegible]	16.12 +.03	53.39 +.03	37.57− .03	24.54 .05	33.94 .07
Dec 4.4	[illegible]	[illegible]	[illegible]	16.12 −.02	53.40 .00	37.43 .24	24.58 +.02	33.98 +.02
14.4	[illegible]	55.12 [illegible]	16.97 −.04	16.08 −.07	53.40 −.03	37.10− .42	24.58 −.02	33.98 −.02
24.4	[illegible]	[illegible]	16.91 .07	15.97 .12	53.37 .06	36.59 .59	24.55 .05	33.94 .07
34.3	[illegible]	[illegible] 1.16	16.84 .09	15.84 −.16	53.28 −.09	35.91− .76	24.47 −.09	33.84 −.12

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date.	ι Hydri	ρ Octantis, S P	f Tauri	γ Camelop	γ Hydri	ε Persei	A¹ Tauri	ε Persei
	° ′ 167 46	° ′ 185 53	° ′ 77 25	° ′ 18 59	° ′ 164 33	° ′ 50 17	° ′ 68 12	° ′ 42 34
	h m 3 18	h m 3 19	h m 3 25	h m 3 39	h m 3 48	h m 3 50	h m 3 58	h m 4 1
	″	″	″	″	″	″	″	″
Dec 30.4	56.53 −.40	24.05 +2.20	12.76 .04	32.61 −.09	54.28 .61	58.47 −.06	58.21 −.00	13.31 −.05
Jan 9.3	55.50 .60	26.55 2.37	12.70 .06	32.31 .30	53.60 .71	58.52 .10	58.17 .07	13.23 .10
19.3	54.57 1.00	28.79 2.40	12.60 .12	31.90 .44	52.86 .79	58.28 .13	58.08 .21	13.10 .15
29.3	53.47 1.10	31.14 2.56	12.47 .13	31.41 .51	52.03 .86	58.14 .16	57.96 .13	12.94 .19
Feb 8.3	52.37 1.20	33.69 2.54	12.34 .14	30.83 .55	51.15 .90	57.98 .19	57.82 .14	12.73 .20
18.2	51.26 −1.09	36.43 +2.60	12.19 −.13	30.33 −.56	50.24 .91	57.76 .20	57.67 −.16	12.49 −.24
28.2	50.18 −1.08	38.87 +2.30	12.04 −.15	29.70 −.57	49.33 .90	57.55 −.20	57.50 −.17	12.24 −.25
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct 5.6	55.89 + .42	33.28 −1.04	15.90 +.20	37.66 +.40	53.00 + .50	61.56 +.30	40.88 +.25	16.54 +.30
15.6	56.37 .40	32.42 .87	15.72 .20	38.25 .55	53.52 .43	61.86 .26	41.12 .24	16.87 .30
25.5	56.72 + .36	32.05 .36	15.89 +.17	38.77 +.46	53.91 +.30	62.11 +.24	41.35 +.20	17.18 +.29
Nov 4.5	56.86 + .05	31.85 + .15	16.05 .14	39.19 .30	54.17 .10	62.34 .21	41.55 .19	17.44 .23
14.5	56.82 − .15	32.23 .50	16.18 .11	39.51 .26	54.28 + .05	62.53 .17	41.72 .15	17.67 .20
24.5	56.59 .30	33.01 .80	16.27 .07	39.75 .16	54.23 .11	62.68 .13	41.86 .11	17.85 .13
Dec 4.4	56.19 .50	34.19 1.51	16.32 .04	39.85 + .01	54.06 .25	62.78 .06	41.94 .08	17.98 .10
14.4	55.60 − .67	35.70 +1.70	16.35 +.02	39.84 .07	53.73 − .41	62.84 +.03	42.01 +.03	18.05 +.05
24.4	54.86 .80	37.64 2.02	16.35 .02	39.72 .10	53.24 .56	62.85 − .01	42.04 +.00	18.06 −.01
34.4	53.98 − .90	39.79 +2.28	16.30 .06	39.47 −.30	52.65 −.64	62.82 −.06	42.02 −.04	18.05 −.06

Mean Solar Date.	ν Eridani	ε Urs Min., S P	δ Mensæ	m Persei	τ Tauri	ι Tauri	ζ Aurigæ	β Eridani
	° ′ 97 6	° ′ 346 0	° ′ 170 27	° ′ 47 9	° ′ 67 14	° ′ 71 20	° ′ 49 4	° ′ 95 13
	h m 4 6	h m 4 20	h m 4 24	h m 4 26	h m 4 36	h m 4 45	h m 4 55	h m 5 2
	″	″	″	″	″	″	″	″
Dec 30.4	52.03 −.02	26.41 +.07	63.33 .90	12.44 .00	5.80 +.01	22.94 +.00	19.16 +.00	49.13 +.00
Jan 9.4	52.01 .07	26.04 .4	62.32 1.10	12.42 .07	5.79 .01	22.94 −.00	19.16 −.00	49.13 .05
19.4	51.92 .10	27.63 .50	61.13 1.25	12.31 .11	5.74 .06	22.90 .06	19.10 .06	49.08 .07
29.3	51.81 .13	28.42 .63	59.88 1.27	12.15 .13	5.68 .08	22.81 .10	19.00 .13	48.99 .10
Feb 8.3	51.66 .15	29.29 .90	58.58 1.40	12.01 .19	5.59 .14	22.69 .13	18.85 .17	48.87 .13
18.3	51.52 −.16	30.22 +.95	56.70 1.40	11.80 .21	5.35 .16	22.55 −.15	18.66 −.00	48.73 −.15
28.3	51.35 .17	31.17 .90	55.50 1.50	11.58 .20	5.18 .17	22.39 .16	18.45 .00	48.57 .17
Mar 10.2	51.18 −.17	32.18 +.88	53.97 −1.60	11.36 −.20	5.01 −.17	22.22 −.17	18.23 −.25	48.39 −.18
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Oct 15.6	54.30 +.00	25.42 −.73	58.55 + .46	15.66 +.33	8.48 +.27	25.49 +.26	22.10 +.36	51.11 +.06
25.6	54.53 +.10	24.74 −.44	59.50 + .45	15.97 +.30	8.74 +.25	25.74 +.25	22.43 +.30	51.34 +.03
Nov 4.6	54.77 .17	24.30 .40	59.95 .40	16.26 .26	8.98 .20	25.99 .23	22.74 .29	51.58 .21
14.5	54.71 .16	23.91 .31	60.18 + .00	16.49 .20	9.19 .19	26.20 .20	23.02 .26	51.77 .18
24.5	55.5 .10	23.17 − .13	60.26 .05	16.70 .16	9.36 .16	26.38 .16	23.24 .20	51.96 .15
Dec 4.5	55.13 .08	21.38 + .06	60.06 .30	16.86 .13	9.51 .10	26.52 .13	23.43 .17	52.10 .11
14.5	55.17 +.03	21.52 + .20	59.69 .11	16.91 +.06	9.60 +.06	26.63 +.09	23.58 +.10	52.20 +.08
24.4	55.18 .00	23.3 .50	58.77 .58	17.01 +.03	9.66 +.01	26.70 +.05	23.65 +.05	52.26 +.05
34.4	55.19 .01	24.17 +.24	58.72 .81	17.01 −.00	9.67 .00	26.72 .00	23.69 .00	52.29 .00

[illegible] DISTANCES AND APPARENT RIGHT ASCENSIONS,
[illegible] TRANSIT AT WASHINGTON.

[illegible]	ι Orionis.	ν Aurigæ.	δ Doradus.	β Aurigæ.	θ Aurigæ.
[illegible]	° ′ 99 42	° ′ 50 53	° ′ 155 46	° ′ 45 4	° ′ 52 48
[illegible]	h m 5 42	h m 5 44	h m 5 44	h m 5 52	h m 5 52
[illegible]	s 54.28 +.06	s 23.67 +.09	s 38.81 −.13	s 1.35 +.09	s 44.55 +.09
[illegible]	54.32 +.01	23.73 +.03	38.63 .23	1.41 +.03	44.61 +.04
[illegible]	54.29 −.04	23.73 −.03	38.35 .32	1.41 −.04	44.62 −.02
[illegible]	54.23 .08	23.66 .08	37.99 .40	1.34 .09	44.57 .07
[illegible]	54.12 .11	23.56 .13	37.55 .47	1.23 .14	44.47 .12
[illegible]	53.99 −.14	23.41 −.17	37.05 −.51	1.06 −.18	44.33 −.16
[illegible]	53.84 .16	23.22 .20	36.52 .56	0.86 .22	44.15 .19
[illegible]	53.66 .18	23.01 .21	35.94 .57	0.63 .25	43.95 .20
[illegible]	53.49 −.17	22.80 −.22	35.38 −.55	0.37 −.27	43.74 −.22
. . .	. . .	. . .	. . .	. . .	. . .
[illegible]	56.19 +.25	26.54 +.36	37.65 +.46	4.28 +.39	47.30 +.35
[illegible]	56.43 .24	26.89 .33	38.08 .40	4.66 .37	47.64 .33
[illegible]	56.67 .22	27.21 .30	38.45 .32	5.01 .33	47.96 .30
[illegible]	56.88 .20	27.49 .26	38.72 .25	5.33 .29	48.24 .27
[illegible]	57.06 .16	27.73 .22	38.91 .14	5.59 .25	48.49 .23
[illegible]	57.20 +.11	27.93 +.17	38.99 +.04	5.82 +.20	48.70 +.18
[illegible]	57.28 .07	28.08 .12	38.98 −.07	5.99 .13	48.86 .12
[illegible]	57.34 +.02	28.16 +.06	38.85 −.18	6.08 +.06	48.95 +.07

[illegible]	[illegible] Aurigæ.	ν Geminor.	χ Draconis. S.P.	ε Geminor.	ψ⁶ Aurigæ.	θ Geminor.	ζ Mensæ.
[illegible]	[illegible]	[illegible]	° ′ 342 41	° ′ 64 46	° ′ 46 19	° ′ 55 55	° ′ 170 42
[illegible]	[illegible]	[illegible]	h m 6 22	h m 6 37	h m 6 39	h m 6 46	h m 6 48
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	s 2.73 +.16	s 43.90 −.17
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.86 .10	43.61 .40
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.93 +.03	43.07 .66
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.93 −.02	42.29 .88
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.89 .07	41.30 1.08
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.79 −.12	40.12 −1.24
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.65 .15	38.81 1.37
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.48 .18	37.38 1.47
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.28 .20	35.87 1.52
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.09 .20	34.34 1.53
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.88 −.20	32.81 −1.51
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.96 [illegible]	36.84 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.09 [illegible]	37.71 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.36 [illegible]	38.35 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38.76 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38.90 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38.78 [illegible]

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Geminor	63 Aurigæ	15 Camelop	Volantis	Can Min	26 Lyncis	Groombr 1374	φ² Cancri
	° ′ 69 17	° ′ 50 31	° ′ 7 23	° ′ 160 20	° ′ 81 30	° ′ 42 10	° ′ 15 48	° ′ 64 20
	h m 6 58	h m 7 4	h m 7 9	h m 7 9	h m 7 21	h m 7 47	h m 7 47	h m 7 54
	s	s	s	s	s	s	s	s
(Dec 30.5)	2.40 +.06	37.15 +.19	39.74+.30	40.65 +.01	36.12 +.10	16.00 +.05	39.11 +.32	44.40 +.02
Jan. 9.5	2.53 .10	37.31 .18	40.26+.31	40.64 −.02	36.26 .11	16.22 .09	39.54 .31	44.59 .17
19.5	2.60 +.04	37.40 +.05	40.41−.02	40.50 .19	36.35 .06	16.38 .08	39.78 +.16	44.74 .11
29.4	2.61 .00	37.41 .00	40.24−.35	40.25 .31	36.38 +.01	16.46 +.05	39.97 .00	44.80 +.05
Feb 8.4	2.59 .05	37.39 −.06	39.71 .48	39.87 .40	36.37 −.02	16.47 −.01	39.79 −.16	44.85 .00
18.4	2.51 −.10	37.30 −.11	38.98 −.46	39.41 −.51	36.32 −.07	16.41 −.09	39.54 −.32	44.80 −.05
28.4	2.39 .13	37.16 .15	37.78 1.00	38.85 .59	36.22 .11	16.29 .14	39.16 .44	44.73 .10
Mar 10.3	2.25 .15	36.99 .19	36.48 1.30	38.23 .64	36.09 .13	16.12 .19	38.66 .55	44.61 .13
20.3	2.09 .17	36.78 .22	35.03 1.46	37.58 .67	35.95 .13	15.91 .23	38.06 .64	44.46 .16
30.3	1.91 .18	36.57 .21	33.52 1.50	36.90 .69	35.78 .17	15.67 .25	37.40 .68	44.29 .17
Apr 9.2	1.74 .17	36.36 −.21	31.97 1.52	36.20 −.70	35.62 −.16	15.42 −.25	36.71 −.69	44.13 −.16
19.2	1.58 .16	36.17 −.19	30.48 1.46	35.53 −.67	35.47 −.15	15.19 −.23	36.02 −.69	43.97 −.16
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Nov 24.6	5.39 +.29	40.56 +.33	48.85+1.88	39.25 +.46	38.78 +.27	19.35 +.44	64.05 +.90	47.23 +.35
Dec. 4.6	5.66 .25	40.88 .31	50.40 1.66	39.67 .37	39.04 .25	19.76 .39	64.92 .81	47.56 .32
14.6	5.89 +.22	41.18 +.27	51.73+1.27	40.00 +.27	39.28 +.23	20.12 +.34	65.68 +.70	47.85 +.27
24.5	6.09 .18	41.41 .20	52.75 .88	40.20 .14	39.49 .19	20.44 .29	66.33 .58	48.10 .24
34.5	6.25 +.14	41.61 +.16	53.43+.35	40.27 +.02	39.66 +.15	20.71 +.24	66.85 +.46	48.33 +.20

Mean Solar Date.	ζ¹ Cancri	β Cancri	30 Monocerotis	θ Chamæleontis	ε Hydræ	γ Cancri	σ² Cancri (mean)	θ Hydræ
	° ′ 72 3	° ′ 80 30	° ′ 93 34	° ′ 167 9	° ′ 86 18	° ′ 68 10	° ′ 59 2	° ′ 87 15
	h m 8 6	h m 8 10	h m 8 20	h m 8 23	h m 8 33	h m 8 37	h m 8 47	h m 9 9
	s	s	s	s	s	s	s	s
Dec 30.6	20.54 +.20	57.87 +.22	32.75 +.20	47.59+.33	24.57 +.20	21.90 +.20	60.08 +.26	2.22 +.26
Jan 9.5	20.73 .17	58.06 .17	32.94 .17	47.84+.16	24.77 .16	22.04 .18	60.32 .22	2.46 .22
19.5	20.87 .11	58.20 .11	33.06 .11	47.92− .00	24.94 .13	22.20 .15	60.53 .17	2.65 .16
29.5	20.96 .06	58.28 .06	33.15 .06	47.91 .00	25.03 .06	22.32 .09	60.66 .11	2.78 .11
Feb 8.5	20.99 +.0[illegible]	58.31 +.00	33.19 +.00	47.82 .12	25.09 +.03	22.38 +.04	60.74 +.06	2.87 .07
18.4	20.98 [illegible]	58.30 .01	33.19 .00	47.70 .11	25.10 −.00	22.40 .00	60.79 .00	2.92 +.00
28.4	20.91 [illegible]	58.25 .06	33.14 .0[illegible]	46.45 .08	25.06 .06	22.37 −.06	60.79 −.06	2.91 .05
Mar 10.4	20.84 .11	58.14 .11	33.03 .11	45.70 .80	24.97 .09	22.29 .10	60.66 .10	2.86 .07
20.4	20.68 .16	58.02 .12	32.92 .11	44.96 .80	24.86 .11	22.17 .12	60.55 .11	2.77 .10
30.3	20.52 .16	57.89 .13	32.77 .15	41.24 .01	24.75 .14	22.05 .14	60.40 .15	2.66 .11
Apr 9.3	20.37 .16	57.73 .11	32.62 −.15	42.70 .89	24.62 .14	21.89 .11	60.25 .16	2.54 .12
19.3	20.21 .16	57.59 .11	32.47 .1[illegible]	41.57 1.0[illegible]	24.45 .14	21.75 .15	60.08 .17	2.41 .13
29.2	20.06 .16	57.48 .16	32.32 .15	40.36 1.0[illegible]	24.3[illegible] .16	21.57 .15	59.91 .16	2.27 .16
May 9.2	19.93 .13	57.33 −.15	32.17 .15	39.36 1.00	24.17 −.11	21.43 .16	59.75 −.16	2.14 .13

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Argus	α Lyncis	10 Leonis Minoris	o Leonis	ζ Chamæleontis	19 Leonis Minoris	π Leonis	λ Ursæ Majoris
	° ′ 150 18	° ′ 55 10	° ′ 53 9	° ′ 79 38	° ′ 170 29	° ′ 48 27	° ′ 81 28	° ′ 46 34
	h m 9 13	h m 9 14	h m 9 27	h m 9 35	h m 9 36	h m 9 51	h m 9 54	h m 10 10
	s	s	s	s	s	s	s	s
[illegible]	[illegible]	[illegible]	[illegible]	41.05 +.27	58.77+ .86	25.07 +.36	47.97 +.29	55.49 +.38
Jan. [illegible]	[illegible]	[illegible]	[illegible]	41.30 .24	59.52 .64	25.41 .31	48.24 .25	55.85 .34
[illegible]	[illegible]	[illegible]	[illegible]	41.52 .20	60.05 .41	25.70 .25	48.46 .21	56.18 .28
[illegible]	[illegible]	[illegible]	[illegible]	41.69 .15	60.34+ .18	25.93 .19	48.65 .17	56.42 .22
Feb. [illegible]	[illegible]	[illegible]	[illegible]	41.82 .10	60.41− .06	26.09 .13	48.79 .12	56.63 .16
[illegible]	[illegible]	[illegible]	[illegible]	41.88 +.05	60.22− .28	26.19 +.07	48.87 +.07	56.75 +.09
[illegible]	[illegible]	[illegible]	[illegible]	41.91 .00	59.84 .49	26.23 +.01	48.92 +.02	56.81 +.03
Mar. [illegible]	[illegible]	[illegible]	[illegible]	41.88 −.04	59.24 .68	26.22 −.05	48.91 −.02	56.82 −.03
[illegible]	[illegible]	[illegible]	[illegible]	41.84 .08	58.47 .85	26.13 .10	48.87 .06	56.76 .08
[illegible]	[illegible]	[illegible]	[illegible]	41.74 .10	57.54 .99	26.02 .13	48.78 .09	56.65 .12
Apr. [illegible]	[illegible]	[illegible]	[illegible]	41.61 −.12	56.48 −1.10	25.87 −.16	48.69 −.10	56.51 −.15
[illegible]	[illegible]	[illegible]	[illegible]	41.48 .13	55.34 1.18	25.69 .18	48.57 .12	56.34 .17
[illegible]	[illegible]	[illegible]	[illegible]	41.35 .11	54.11 1.24	25.51 .18	48.45 .12	56.16 .19
May [illegible]	[illegible]	[illegible]	[illegible]	41.43 .12	52.85 1.27	25.32 .19	48.33 .13	55.96 .20
[illegible]	[illegible]	[illegible]	[illegible]	41.10 −.13	51.57 −1.29	25.14 −.18	48.20 −.12	55.78 −.19

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	β Chamæleontis	46 Leonis Minoris	Groombr. 1706
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	° 170 [illegible]	° ′ 55 14	° ′ 11 41
	h m [illegible]	h m [illegible]	h m [illegible]	h m [illegible]	h m [illegible]	h m 10 [illegible]	h m 10 47	h m 10 51
	s	s	s	s	s	s	s	s
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51.25 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52.13 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52.50 [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	53.25 .35
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date	ν Octantis	ρ Leonis	ψ Urs Maj	ν Urs Maj	ξ Hydræ	χ Urs Maj	π Virginis	ε Corvi
	° ′ 174 2	° ′ 87 29	° ′ 44 57	° ′ 56 21	° ′ 121 17	° ′ 41 39	° ′ 82 49	° ′ 112 3
	h m 10 59	h m 11 1	h m 11 3	h m 11 12	h m 11 27	h m 11 40	h m 11 55	h m 12 4
Feb 8.6	70.27	41.31	55.73	58.01	58.19	40.06	37.84	51.61
18.6	70.82	41.36	55.95	58.20	58.35	40.31	38.05	51.83
28.5	71.05	41.47	56.09	58.34	58.52	40.50	38.22	52.01
Mar 10.5	70.96	41.52	56.15	58.41	58.60	40.63	38.33	52.14
20.5	70.55	41.55	56.17	58.44	58.64	40.68	38.40	52.22
30.4	69.81	41.52	56.12	58.42	58.65	40.69	38.44	52.27
Apr 9.4	68.82	41.49	56.02	58.37	58.62	40.63	38.45	52.29
19.4	67.59	41.42	55.90	58.27	58.56	40.52	38.43	52.28
29.4	66.13	41.32	55.75	58.16	58.47	40.38	38.37	52.25
May 9.3	64.50	41.21	55.57	58.03	58.36	40.21	38.31	52.18
19.3	62.71	41.12	55.39	57.89	58.24	40.02	38.22	52.09
29.3	60.87	41.02	55.19	57.75	58.12	39.83	38.14	52.01
June 8.3	58.96	40.92	55.00	57.59	57.98	39.61	38.04	51.91
18.2	57.06	40.82	54.82	57.45	57.85	39.41	37.94	51.81

Mean Solar Date	2 Can Ven	6 Urs Min	β Corvi	β Can Ven	γ Virginis	31 Comæ Berenices	Cassiop S.P.	43 Cephei S.P.
	° ′ 48 46	° ′ 1 44	° ′ 105 57	° ′ 48 5	° ′ 90 53	° ′ 61 54	° ′ 330 10	° ′ 355 42
	h m 12 11	h m 12 14	h m 12 24	h m 12 28	h m 12 36	h m 12 46	h m 12 50	h m 12 54
Feb 8.6	[illegible]	[illegible]	34.16	[illegible]	28.45	[illegible]	28.42	[illegible]
18.6	[illegible]	72.31	[illegible]	[illegible]	[illegible]	[illegible]	28.16	24.19
28.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	43.72	[illegible]	[illegible]
Mar 10.5	1.35	[illegible]	[illegible]	54.44	29.03	[illegible]	[illegible]	21.24
20.5	1.44	[illegible]	[illegible]	[illegible]	29.14	[illegible]	[illegible]	[illegible]
30.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.13	[illegible]	[illegible]
Apr 9.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19.4	1.44	[illegible]	34.95	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44.16	[illegible]	[illegible]
May 9.4	[illegible]	[illegible]	[illegible]	54.44	[illegible]	44.10	[illegible]	[illegible]
19.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
June 8.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18.3	[illegible]	[illegible]	34.57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] APPARENT RIGHT ASCENSIONS, [illegible] AT WASHINGTON.

B.A.C. 4536.	α Virginis.	θ Apodis.	π Hydræ.
° ′ 52 17	° ′ 98 11	° ′ 166 18	° ′ 116 11
h m 13 30	h m 13 36	h m 13 55	h m 14 0
s	s	s	s
[illegible]	14.51 +.23	21.90 +.84	32.37 +.24
[illegible]	14.72 .19	22.68 .72	32.61 .23
[illegible]	14.89 .16	23.34 .59	32.84 .20
[illegible]	15.04 .13	23.87 .46	33.02 .17
[illegible]	15.16 .09	24.27 .33	33.17 .13
[illegible]	15.23 +.06	24.54 +.20	33.29 +.10
[illegible]	15.28 .03	24.67 +.07	33.37 .06
[illegible]	15.30 +.01	24.68 −.06	33.41 .03
[illegible]	15.30 −.01	24.55 .19	33.44 +.01
15.30 [illegible]	15.28 .03	24.30 .30	33.44 −.01
14.88 −.13	15.24 −.05	23.94 −.41	33.42 −.04
[illegible]	15.18 .08	23.47 .58	33.36 .07
[illegible]	15.09 .09	22.90 .60	33.28 .09
14.44 −.17	14.99 −.10	22.27 −.66	33.18 −.11

λ Boötis.	λ Virginis.	μ Hydri, S.P.	α Apodis.
° ′ 43 26	° ′ 102 54	° ′ 190 26	° ′ 168 36
h m 14 12	h m 14 13	h m 14 33	h m 14 35
s	s	s	s
[illegible]	34.56 +.19	46.35 −.84	10.79 +.87
[illegible]	34.84 .17	45.59 .68	11.60 .74
[illegible]	34.99 .14	44.99 .50	12.28 .60
[illegible]	35.12 .11	44.58 .31	12.80 .44
[illegible]	35.20 .07	44.36 −.13	13.16 .28
[illegible]	[illegible]	44.32 +.07	13.36 +.12
[illegible]	[illegible]	44.51 .27	13.40 −.04
[illegible]	35.31 .00	44.87 .46	13.27 .21
[illegible]	35.29 −.03	45.42 .64	12.98 .37
[illegible]	35.25 .05	46.14 .79	12.54 .50
[illegible]	[illegible] −.08	46.99 +.92	11.97 −.65
[illegible]	[illegible] .10	47.98 1.04	11.27 .74
[illegible]	[illegible] .11	49.07 1.12	10.49 .83
[illegible]	34.88 −.11	50.21 +1.15	9.62 −.90

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON

Mean Solar Date	33 Boötis	47 Cephei S. P.	ν Scorpii	δ Boötis	ρ Octantis	β Cor. Bor.	γ Camelop. S. P.	θ Apodis
	° ′ 45 9	° ′ 349 1	° ′ 114 53	° ′ 56 18	° ′ 174 7	° ′ 60 32	° ′ 341 1	° ′ 168 26
	h m 14 35	h m 14 52	h m 14 [illegible]	h m 15 11	h m 15 19	h m 15 23	h m 15 39	h m 16 5
	s	s	s	s	s	s	s	s
Mar 30.6	3.27 +.11	10.5[illegible]	5.14 +.[illegible]	21.78 +.[illegible]	45.31 [illegible]	37.47 +.11	28.33 .30	4.57 +1.10
Apr 9.6	3.45 [illegible]	10.11 [illegible]	5.35 .20	[illegible]	[illegible]	[illegible]	28.01 [illegible]	5.63 .90
19.5	3.57 [illegible]	18.[illegible]	5.51 [illegible]	24.04 .16	48.33 [illegible]	37.85 .16	27.83 .10	6.96 .88
29.5	3.64 .06	19.02 +.16	5.69 [illegible]	24.17 [illegible]	[illegible]	38.00 .11	[illegible]	7.35 .70
May 9.5	3.68 +.02	19.29 .30	5.79 [illegible]	24.25 [illegible]	50.14 .38	38.09 [illegible]	27.84 +.10	7.98 .56
19.5	3.[illegible]	19.[illegible]	5.[illegible]	24.31 +.04	50.57 +.25	38.17 [illegible]	28.02 +.05	8.47 +.40
29.4	3.62 [illegible]	20.49 [illegible]	5.[illegible]	24.32 [illegible]	50.64 [illegible]	38.2[illegible]	28.35 .30	8.79 .18
June 8.4	3.52 .11	21.34 [illegible]	5.[illegible]	24.30 [illegible]	50.[illegible]	38.19 [illegible]	28.79 [illegible]	8.92 +.05
18.4	3.40 .14	22.32 [illegible]	5.94 [illegible]	24.24 [illegible]	49.80 [illegible]	38.16 [illegible]	29.35 .50	8.88 −.13
28.3	3.25 [illegible]	23.48 [illegible]	5.[illegible]	24.15 .11	48.33 [illegible]	38.[illegible]	29.97 [illegible]	8.65 .31
July 8.3	3.[illegible]	24.[illegible]	5.82 [illegible]	24.03 −.16	47.75 [illegible]	37.[illegible]	30.68 +.74	8.26 .46
18.3	2.85 [illegible]	26.[illegible]	5.73 .10	23.88 .16	46.33 [illegible]	37.90 .14	31.46 .70	7.73 .60
28.3	2.63 [illegible]	27.32 [illegible]	5.62 [illegible]	23.72 .18	44.68 [illegible]	37.71 .16	32.26 [illegible]	7.07 .70
Aug 7.2	2.40 [illegible]	28.[illegible]	5.48 .14	23.55 .10	42.91 [illegible]	37.55 .18	33.09 .83	6.30 .83
17.2	2.15 [illegible]	29.38 [illegible]	5.33 .15	23.34 [illegible]	41.09 1.81	37.36 .18	33.91 [illegible]	5.42 .89
27.2	1.92 .03	31.2[illegible]	5.17 −.16	23.14 −.20	39.25 1.81	37.18 −.18	34.73 +.80	4.52 −.90

Mean Solar Date	σ Herculis	ε Cor. Bor. ([illegible])	γ Apodis	ε Urs. Min.	ν Ophiuchi	π Herculis	θ Ophiuchi	δ Aræ
	° ′ 44 48	° ′ 55 53	° ′ 168 40	° ′ 14 0	° ′ 105 36	° ′ 53 4	° ′ 114 54	° ′ 150 36
	h m 16 5	h m 16 10	h m 16 17	h m 16 20	h m 17 4	h m 17 11	h m 17 15	h m 17 21
	s	s	s	s	s	s	s	s
Apr 9.6	33.[illegible]	51.[illegible]	48.25 [illegible]	34.46 +.61	30.71 +.30	29.64 +.[illegible]	43.60 +.33	52.11 +.33
19.6	34.00 .01	51.69 [illegible]	49.25 [illegible]	35.01 [illegible]	30.[illegible]	29.92 [illegible]	43.91 [illegible]	52.64 .30
29.6	34.19 [illegible]	52.[illegible]	50.12 .70	35.43 .35	31.25 [illegible]	30.17 [illegible]	44.18 .03	53.18 [illegible]
May 9.6	34.35 [illegible]	52.25 .14	5[illegible]	35.70 [illegible]	31.45 [illegible]	30.38 [illegible]	44.41 [illegible]	53.56 .41
19.5	34.45 [illegible]	52.56 [illegible]	51.37 [illegible]	35.9[illegible]	31.65 [illegible]	30.57 [illegible]	44.64 [illegible]	53.94 [illegible]
29.5	34.[illegible]	52.62 [illegible]	51.[illegible]	35.78 [illegible]	31.83 [illegible]	30.72 +.11	44.84 +.10	54.27 +.28
June 8.4	34.51 [illegible]	52.65 [illegible]	51.[illegible]	35.[illegible]	31.[illegible]	30.[illegible]	45.[illegible]	54.51 [illegible]
18.4	34.47 [illegible]	52.65 −.00	51.[illegible]	35.26 .41	32.[illegible]	30.96 +.01	45.13 [illegible]	54.70 .19
28.4	34.18 [illegible]	52.48 [illegible]	51.79 [illegible]	34.[illegible]	32.13 +.04	30.87 −.01	45.19 [illegible]	54.91 [illegible]
July 8.4	34.35 [illegible]	52.18 [illegible]	51.45 [illegible]	34.1[illegible]	32.14 [illegible]	30.84 [illegible]	45.24 +.00	54.84 −.01
18.4	34.[illegible]	52.[illegible]	50.[illegible]	33.65 [illegible]	32.14 [illegible]	30.75 [illegible]	45.24 [illegible]	54.[illegible]
28.3	[illegible]	[illegible]	[illegible]	[illegible]	32.[illegible]	30.[illegible]	45.20 [illegible]	54.[illegible]
Aug 7.3	33.[illegible]	[illegible]	49.54 [illegible]	31.78 [illegible]	31.98 [illegible]	30.47 [illegible]	45.11 .11	54.48 [illegible]
17.3	33.[illegible]	[illegible]	48.[illegible]	30.[illegible]	31.88 [illegible]	30.28 [illegible]	44.98 .14	54.22 [illegible]
27.3	33.12 [illegible]	51.6[illegible]	47.[illegible]	[illegible]	31.[illegible]	30.[illegible]	44.84 [illegible]	53.[illegible]
Sept 6.2	32.8[illegible]	51.35 [illegible]	46.78 [illegible]	28.[illegible]	31.58 [illegible]	29.[illegible]	44.68 −.17	53.57 −.35
16.2	32.48 [illegible]	51.[illegible]	45.[illegible]	27.[illegible]	31.41 [illegible]	29.58 [illegible]	44.50 [illegible]	53.22 .36
26.2	32.13 [illegible]	50.81 [illegible]	44.[illegible]	[illegible]	31.24 [illegible]	29.34 [illegible]	44.32 [illegible]	52.86 .36
Oct 6.2	32.12 [illegible]	50.48 [illegible]	44.[illegible]	26.24 [illegible]	31.10 −.14	29.12 −.20	44.16 −.11	52.54 −.30

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	Groombr. 944, S. P.	ι Herculis.	θ Herculis.	ο Herculis.	λ Sagittarii.	χ Draconis.	ζ Pavonis.	γ Lyræ.
	355° 9′	43° 56′	52° 44′	61° 15′	115° 29′	17° 19′	161° 31′	57° 27′
	17h 28m	17h 36m	17h 52m	18h 3m	18h 21m	18h 22m	18h 31m	18h 55m
	s	s	s	s	s	s	s	s
May 19.6	55.37− .39	36.46 +.20	45.99 +.21	34.26 +.22	40.39 +.26	57.68 +.42	7.81 +.66	7.98 +.25
29.6	55.20+ .05	36.63 .15	46.18 .16	34.46 .18	40.64 .24	58.04 .29	8.43 .57	8.22 .23
June 8.5	55.48 .52	36.75 .09	46.32 .12	34.62 .14	40.87 .21	58.27 .17	8.96 .47	8.43 .19
18.5	56.24 .96	36.81 +.05	46.42 .07	34.74 .10	41.06 .16	58.39 +.06	9.37 .37	8.61 .15
28.5	57.41 1.39	36.84 .00	46.47 +.03	34.81 .06	41.20 .12	58.39 −.07	9.69 .26	8.73 .10
July 8.4	59.02+1.78	36.80 −.07	46.49 −.02	34.85 +.02	41.30 +.08	58.25 −.20	9.89 +.12	8.81 +.06
18.4	60.98 2.10	36.70 .12	46.44 .07	34.84 −.03	41.36 +.04	57.99 .31	9.94 −.01	8.85 +.02
28.4	63.23 2.40	36.56 .16	46.35 .11	34.79 .08	41.37 −.01	57.62 .43	9.87 .13	8.84 −.04
Aug. 7.4	65.79 2.67	36.38 .20	46.22 .15	34.68 .12	41.33 .06	57.14 .52	9.68 .23	8.77 .08
17.3	68.57 2.85	36.16 .24	46.05 .18	34.55 .15	41.25 .10	56.57 .62	9.40 .34	8.67 .13
27.3	71.49+2.99	35.90 −.27	45.86 −.22	34.38 −.18	41.13 −.13	55.91 −.69	8.99 −.44	8.52 −.16
Sept. 6.3	74.55 3.09	35.62 .29	45.63 .25	34.20 .20	40.98 .15	55.19 .75	8.51 .52	8.35 .19
16.3	77.66 3.12	35.32 .30	45.37 .26	33.99 .21	40.82 .17	54.42 .78	7.95 .57	8.14 .21
26.2	80.76 3.06	35.02 .29	45.12 .25	33.78 .21	40.64 .18	53.63 .79	7.37 .58	7.93 .22
Oct. 6.2	83.79 2.99	34.74 .28	44.89 .24	33.56 .21	40.46 .18	52.83 .80	6.78 .59	7.70 .23
16.2	86.73+2.89	34.47 −.27	44.65 −.24	33.36 −.20	40.29 −.17	52.04 −.79	6.20 −.58	7.48 −.22

Mean Solar Date.	ι Lyræ.	25 Camelop. S. P.	θ Lyræ.	β Cygni.	β Sagittæ.	δ Cygni.	Groombr. 1374, S. P.	ε Pavonis
	54° 4′	352° 37′	52° 3′	62° 15′	72° 46′	45° 7′	344° 12′	163° 11′
	19h 3m	19h 9m	19h 12m	19h 26m	19h 36m	19h 41m	19h 47m	19h 48m
	s	s	s	s	s	s	s	s
May 29.6	40.31 +.23	26.09− .62	50.14 +.25	36.74 +.24	28.14 +.25	47.82 +.29	53.89− .36	48.76 +.78
June 8.6	40.53 .20	25.61 .34	50.37 .21	36.97 .22	28.38 .23	48.09 .25	53.59 .23	49.50 .70
18.6	40.72 .16	25.41− .06	50.56 .17	37.18 .19	28.59 .20	48.32 .20	53.42− .11	50.16 .60
28.5	40.85 .11	25.50+ .23	50.71 .12	37.35 .14	28.78 .16	48.50 .15	53.37+ .02	50.70 .48
July 8.5	40.94 .06	25.87 .51	50.80 .07	37.46 .10	28.91 .11	48.63 .10	53.47 .16	51.12 .36
18.5	40.97 +.02	26.53+ .79	50.85 +.03	37.54 +.06	29.00 +.08	48.70 +.04	53.69+ .28	51.42 +.23
28.4	40.97 −.03	27.45 1.03	50.86 −.03	37.57 .00	29.06 +.03	48.71 −.02	54.02 .40	51.57 +.08
Aug. 7.4	40.90 .08	28.60 1.26	50.80 .08	37.55 −.05	29.06 −.02	48.67 .07	54.49 .52	51.58 −.06
17.4	40.80 .12	29.97 1.47	50.69 .13	37.48 .09	29.03 .07	48.57 .12	55.05 .62	51.45 .20
27.4	40.65 .16	31.53 1.66	50.54 .17	37.37 .12	28.93 .10	48.43 .16	55.70 .71	51.18 .33
Sept. 6.3	40.47 −.20	33.28+1.81	50.36 −.20	37.23 −.15	28.83 −.13	48.24 −.21	56.48+ .80	50.80 −.44
16.3	40.26 .22	35.15 1.92	50.14 .22	37.06 .18	28.68 .15	48.02 .24	57.30 .86	50.31 .54
26.3	40.03 .23	37.11 2.01	49.91 .24	36.87 .20	28.52 .17	47.76 .26	58.20 .93	49.73 .60
Oct. 6.3	39.79 .24	39.17 2.07	49.65 .25	36.66 .21	28.34 .18	47.49 .27	59.16 .97	49.11 .64
16.2	39.56 .23	41.25 2.05	49.41 .24	36.46 .20	28.16 .18	47.21 .28	60.15 .98	48.46 .65
26.2	39.32 −.23	43.27+2.02	49.18 −.23	36.26 −.19	27.98 −.17	46.94 −.27	61.13+ .99	47.80 −.64
Nov. 5.2	39.12 −.22	45.28+2.00	48.96 −.22	36.08 −.18	27.83 −.14	46.67 −.27	62.13+1.00	47.17 −.62

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ι Sagittæ	[illegible] Sagittarii	θ Aquilæ	31 Cygni	ε Delphini	β Pavonis	ψ Capricorni	ε Cygni
	° ′ 70 47	° ′ 118 0	° ′ 91 8	° ′ 43 34	° ′ 74 27	° ′ 156 34	° ′ 115 35	° ′ 56 25
	h m 19 54	h m 19 56	h m 20 6	h m 20 10	h m 20 34	h m 20 35	h m 20 40	h m 20 42
	s	s	s	s	s	s	s	s
June 18.6	13.71 +.00	23.65 +.00	2.80 +.00	26.13 +.00	54.20 +.05	47.84 +.00	3.71 +.00	5.46 +.00
28.6	13.91 [illegible]	23.88 [illegible]	3.01 [illegible]	26.34 [illegible]	54.51 [illegible]	48.35 [illegible]	3.98 [illegible]	5.70 [illegible]
July 8.6	14.08 .13	24.08 [illegible]	3.19 .16	26.52 .13	54.71 .18	48.76 [illegible]	4.20 [illegible]	5.90 .18
18.5	14.18 [illegible]	24.24 .13	3.33 .11	26.63 [illegible]	54.87 .11	49.11 [illegible]	4.40 [illegible]	6.06 .13
28.5	14.26 [illegible]	24.34 [illegible]	3.42 [illegible]	26.68 +.03	54.97 [illegible]	49.34 .10	4.56 .11	6.16 [illegible]
Aug 7.5	14.28 [illegible]	24.39 +.03	3.46 +.03	26.68 −.03	55.03 +.04	49.47 [illegible]	4.63 [illegible]	6.22 +.03
17.4	14.26 [illegible]	24.39 [illegible]	3.47 [illegible]	26.61 [illegible]	55.06 [illegible]	49.49 [illegible]	4.65 [illegible]	6.22 [illegible]
27.4	14.18 [illegible]	24.34 [illegible]	3.42 [illegible]	26.49 .14	55.03 [illegible]	49.42 .18	4.67 [illegible]	6.19 [illegible]
Sept 6.4	14.08 .11	24.25 .11	3.35 [illegible]	26.33 .18	54.96 [illegible]	49.24 [illegible]	4.63 [illegible]	6.10 [illegible]
16.4	13.96 .13	24.12 .16	3.25 .11	26.13 .21	54.87 .11	48.96 .31	4.53 .11	5.98 .13
26.3	13.79 [illegible]	23.97 [illegible]	3.11 .13	25.97 [illegible]	54.75 .14	48.63 [illegible]	4.41 .13	5.81 [illegible]
Oct 6.3	13.62 [illegible]	23.80 [illegible]	2.95 [illegible]	25.81 [illegible]	54.59 .16	48.21 [illegible]	4.26 .15	5.64 [illegible]
16.3	13.44 [illegible]	23.62 .18	2.81 .14	25.53 [illegible]	54.42 [illegible]	47.77 [illegible]	4.10 .16	5.43 [illegible]
26.2	13.26 [illegible]	23.44 [illegible]	2.66 [illegible]	25.06 [illegible]	54.26 [illegible]	47.31 [illegible]	3.93 .17	5.24 [illegible]
Nov 5.2	13.03 .16	23.28 .15	2.50 .16	24.78 [illegible]	54.10 [illegible]	46.85 [illegible]	3.76 .16	5.03 [illegible]
15.2	12.85 [illegible]	23.14 [illegible]	2.38	24.53 [illegible]	53.96 .14	46.42 [illegible]	3.62 −.14	4.84 [illegible]
25.2	12.84 [illegible]	23.03 [illegible]	2.28 [illegible]	24.30 [illegible]	53.82 [illegible]	46.04 [illegible]	3.48 −.13	4.66 .18

Mean Solar Date.	ν Cygni	ι Capricorni	74 Cygni	[illegible] Octantis	[illegible] Chamæle… S.)	ρ Cygni	16 Pegasi	π Pegasi
	° ′ 52 24	° ′ 112 51	° ′ 50 3	° ′ 173 12	° ′ 159 31	° ′ 41 10	° ′ 64 34	° ′ 57 20
	h m 21 1[illegible]	h m 21 20	h m 21 32	h m 21 35	h m 21 36	h m 21 43	h m 21 48	h m 22 5
	s	s	s	s	s	s	s	s
July 8.6	43.95 [illegible]	51.34 [illegible]	52.52 [illegible]	25.69 [illegible]	46.05 [illegible]	2.31 [illegible]	25.69 [illegible]	27.84 [illegible]
18.6	44.15 [illegible]	51.56 [illegible]	52.54 [illegible]	26.25 [illegible]	45.54 [illegible]	2.55 [illegible]	25.92 [illegible]	28.08 [illegible]
28.5	44.32 [illegible]	51.75 [illegible]	52.71 [illegible]	27.92 [illegible]	44.79 [illegible]	2.74 [illegible]	26.10 [illegible]	28.28 [illegible]
Aug 7.5	44.39 [illegible]	51.88 [illegible]	52.84 [illegible]	28.58 [illegible]	44.45 [illegible]	2.88 [illegible]	26.24 [illegible]	28.44 [illegible]
17.5	44.41 [illegible]	[illegible]	52.88 [illegible]	[illegible]	44.37 [illegible]	2.94 [illegible]	26.32 [illegible]	28.53 [illegible]
27.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.95 [illegible]	26.37 [illegible]	[illegible]
Sept 6.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.37 [illegible]	[illegible]
16.4	44.21	[illegible]	[illegible]	[illegible]	45.41 [illegible]	[illegible]	26.33 [illegible]	[illegible]
26.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.24 [illegible]	[illegible]
Oct 6.4	[illegible]	[illegible]	52.48 [illegible]	[illegible]	47.19 [illegible]	2.47 [illegible]	26.13 [illegible]	28.40 [illegible]
16.3	[illegible]	[illegible]	[illegible]	24.16 [illegible]	[illegible]	2.26 [illegible]	26.00 −.14	[illegible]
26.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.85 [illegible]	[illegible]
Nov 5.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.77 [illegible]	25.70 [illegible]	[illegible]
15.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.51 [illegible]	25.53 [illegible]	[illegible]
25.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.25 [illegible]	25.39 [illegible]	[illegible]
Dec 5.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.02 [illegible]	25.25 [illegible]	27.45 [illegible]

APPROXIMATE NORTH POLAR DISTANCES AND APPARENT RIGHT ASCENSIONS, FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ν Octantis.	γ Aquarii.	σ Aquarii.	ι Lacertæ.	10 Lacertæ.	β Octantis.	λ Pegasi.	Groombr. 1706, S. P.
	176° 29′	91° 54′	101° 12′	40° 15′	51° 29′	171° 55′	66° 59′	348° 19′
	22h 12m	22h 16m	22h 25m	22h 27m	22h 34m	22h 35m	22h 41m	22h 51m
	s	s	s	s	s	s	s	s
July 8.6	26.98+2.96	23.57 +.25	15.26 +.26	5.74 +.31	41.30 +.30	44.97+1.42	37.20 +.27	45.01− .65
18.6	29.69 2.45	23.81 .22	15.51 .24	6.03 .28	41.58 .25	46.30 1.23	37.46 .25	44.41 .53
28.6	31.89 1.92	24.02 .19	15.74 .20	6.30 .23	41.81 .21	47.44 1.01	37.70 .22	43.94 .41
Aug 7.6	33.54 1.56	24.18 .15	15.92 .16	6.50 .17	42.01 .17	48.33 .77	37.89 .16	43.60 .28
17.5	34.61 .75	24.32 .10	16.06 .11	6.63 .11	42.15 .12	48.98 .51	38.03 .12	43.38− .13
27.5	35.03+ .09	24.39 +.05	16.14 +.07	6.70 +.05	42.24 +.07	49.36+ .23	38.13 +.08	43.33+ .02
Sept 6.5	34.79− .57	24.42 +.02	16.20 +.03	6.73 .00	42.28 +.02	49.45− .06	38.20 +.04	43.41 .17
16.4	33.89 1.20	24.42 −.01	16.21 .00	6.70 −.06	42.28 −.02	49.24 .35	38.22 .00	43.67 .33
26.4	32.39 1.80	24.40 .05	16.19 −.04	6.61 .11	42.24 .07	48.74 .62	38.19 −.04	44.08 .49
Oct 6.4	30.29 2.35	24.33 .08	16.12 .07	6.49 .15	42.14 .11	48.00 .86	38.14 .07	44.65 .63
16.4	27.68−2.80	24.24 −.10	16.04 −.10	6.32 −.18	42.02 −.13	47.02−1.07	38.04 −.10	45.34+ .77
26.3	24.69 3.14	24.13 .11	15.92 .12	6.13 .21	41.89 .15	45.85 1.24	37.94 .11	46.20 .90
Nov. 5.3	21.37 3.39	24.01 .12	15.80 .12	5.91 .23	41.73 .17	44.53 1.37	37.82 .12	47.16 1.02
15.3	17.91 3.48	23.88 .12	15.68 .12	5.66 .25	41.55 .18	43.10 1.45	37.69 .13	48.23 1.12
25.3	14.41 3.45	23.77 .11	15.55 .12	5.41 .24	41.37 .18	41.62 1.46	37.55 .14	49.42 1.19
Dec 5.2	11.00−3.28	23.65 −.10	15.44 −.11	5.18 −.23	41.19 −.18	40.18−1.41	37.41 −.13	50.62+1.22
15.2	7.84−3.00	23.56 −.09	15.33 −.11	4.95 −.22	41.01 −.18	38.80−1.34	37.29 −.12	51.86+1.24

Mean Solar Date.	ο Androm.	φ Aquarii.	τ Pegasi.	λ Androm.	ι³ Aquarii.	δ Sculptoris.	γ¹ Octantis.	33 Piscium.
	48° 14′	96° 36′	66° 49′	44° 6′	108° 51′	118° 42′	172° 35′	96° 17′
	22h 57m	23h 9m	23h 15m	23h 32m	23h 38m	23h 43m	23h 46m	24h 0m
	s	s	s	s	s	s	s	s
July 28.6	14.29 +.25	3.05 +.22	35.75 +.24	34.76 +.31	55.34 +.27	37.56 +.28	15.34+1.35	7.28 +.25
Aug. 7.6	14.52 .20	3.26 .19	35.97 .20	35.04 .25	55.59 .23	37.82 .24	16.63 1.20	7.52 .23
17.6	14.70 .15	3.44 .15	36.15 .16	35.26 .20	55.79 .19	38.04 .20	17.75 .98	7.74 .20
27.5	14.83 .10	3.57 .11	36.29 .12	35.44 .15	55.97 .15	38.23 .16	16.60 .70	7.92 .16
Sept. 6.5	14.90 +.05	3.66 .07	36.38 .08	35.57 .10	56.09 .10	38.37 .11	19.16 .40	8.06 .12
16.5	14.92 .00	3.71 +.03	36.44 +.04	35.64 +.05	56.17 +.06	38.45 +.07	10.41+ .10	8.15 +.09
26.5	14.91 −.05	3.73 .00	36.46 .00	35.67 +.01	56.22 +.03	38.49 +.02	10.37− .22	8.23 .05
Oct 6.4	14.83 .09	3.71 −.03	36.44 .04	35.66 −.03	56.22 −.01	38.51 −.01	18.99 .52	8.25 +.01
16.4	14.73 .12	3.67 .06	36.39 .07	35.60 .07	56.20 .04	38.47 .05	18.33 .80	8.25 −.02
26.4	14.61 .14	3.58 .09	36.30 .09	35.50 .11	56.14 .07	38.40 .09	17.39 1.06	8.22 .04
Nov. 5.3	14.46 −.16	3.48 −.10	36.21 −.10	35.37 −.14	56.04 .09	38.29 −.11	16.20 1.29	8.17 −.06
15.3	14.29 .18	3.38 .10	36.10 .12	35.22 .16	55.95 .10	38.18 .12	14.81 1.46	8.09 .08
25.3	14.10 .19	3.27 .11	35.97 .13	35.04 .18	55.83 .11	38.06 .13	13.28 1.57	8.00 .09
Dec 5.3	13.91 .19	3.16 .11	35.85 .12	34.85 .19	55.72 .12	37.92 .14	11.67 1.63	7.90 .10
15.2	13.73 .18	3.05 .10	35.73 .12	34.66 .19	55.60 .12	37.78 .14	10.02 1.64	7.80 .10
25.2	13.56 −.18	2.95 −.08	35.61 −.12	34.46 −.20	55.48 −.12	37.64 −.14	8.30 −1.58	7.69 −.11
35.2	13.38 −.18	2.87 −.05	35.49 −.12	34.26 −.20	55.37 −.11	37.51 −.13	[illegible] 1.45	7.59 −.10

FOR WASHINGTON MEAN AND APPARENT NOON.

Date		Apparent Right Ascension		Apparent Declination		Hourly Motion		Equation of Time for Apparent Noon	Semi-diameter at Apparent Noon	Sidereal Time of Semi-d. Passing Meridian	Sidereal Time of Mean Noon
		Mean Noon	App. Noon	Mean Noon	App. Noon	Right Ascen.	Declination				
		h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Jan	1	18 50 32.38	33.24	22 56 45.5	44.6	[illegible]	+[illegible]	+ 4 6.85	16 18.36	1 11.02	18 46 25.62
	2	18 54 56.97	57.80	22 51 12.1	11.0	[illegible]	[illegible]	4 34.86	16 18.35	1 10.97	18 50 22.18
	3	18 59 21.17	22.09	22 45 11.4	10.1	[illegible]	[illegible]	5 2.52	16 18.34	1 10.92	18 54 18.74
	4	19 3 44.97	45.98	22 38 43.7	42.2	[illegible]	[illegible]	5 29.77	16 18.33	1 10.87	18 58 15.30
	5	19 8 8.32	9.41	22 31 49.0	47.0	[illegible]	[illegible]	5 56.58	16 18.31	1 10.81	19 2 11.86
	6	19 12 31.21	32.39	−22 24 27.4	25.4	[illegible]	+[illegible]	+ 6 22.91	16 18.29	1 10.75	19 6 8.42
	7	19 16 53.58	54.83	22 16 39.6	37.2	[illegible]	[illegible]	6 48.74	16 18.26	1 10.68	19 10 4.97
	8	19 21 15.42	16.74	22 8 25.4	22.8	[illegible]	[illegible]	7 14.02	16 18.23	1 10.60	19 14 1.53
	9	19 25 36.70	38.09	21 59 45.3	42.5	[illegible]	[illegible]	7 38.74	16 18.19	1 10.52	19 17 58.09
	10	19 29 57.39	58.85	21 50 39.5	36.4	[illegible]	[illegible]	8 2.88	16 18.15	1 10.44	19 21 54.65
	11	19 34 17.47	19.01	21 41 8.4	4.9	[illegible]	+[illegible]	+ 8 26.41	16 18.11	1 10.36	19 25 51.21
	12	19 38 36.98	38.51	21 31 12.2	8.4	[illegible]	[illegible]	8 49.29	16 18.06	1 10.28	19 29 47.76
	13	19 42 55.71	57.37	21 20 50.9	46.8	[illegible]	[illegible]	9 11.53	16 18.01	1 10.19	19 33 44.32
	14	19 47 13.81	15.55	21 10 5.2	0.8	[illegible]	[illegible]	9 33.10	16 17.95	1 10.10	19 37 40.88
	15	19 51 31.26	33.04	20 58 55.2	50.4	[illegible]	[illegible]	9 53.98	16 17.89	1 10.01	19 41 37.44
	16	19 55 48.00	49.83	20 47 21.3	16.2	[illegible]	+[illegible]	+10 14.15	16 17.81	1 9.92	19 45 34.00
	17	20 0 4.02	5.[illegible]	20 35 23.9	18.4	[illegible]	[illegible]	10 33.61	16 17.73	1 9.82	19 49 30.55
	18	20 4 19.32	21.24	20 23 2.9	57.2	[illegible]	[illegible]	10 52.35	16 17.65	1 9.72	19 53 27.11
	19	20 8 33.48	35.86	20 10 10.0	12.9	[illegible]	[illegible]	11 10.35	16 17.56	1 9.62	19 57 23.67
	20	20 12 47.70	49.71	19 57 22.5	6.1	[illegible]	[illegible]	11 27.61	16 17.46	1 9.52	20 1 20.23
	21	20 17 0.75	2.82	19 43 43.6	36.9	[illegible]	+[illegible]	+11 44.11	16 17.36	1 9.41	20 5 16.78
	22	20 21 13.06	15.26	19 29 52.7	45.6	[illegible]	[illegible]	11 59.[illegible]	16 17.25	1 9.30	20 9 13.34
	23	20 25 24.60	26.74	19 15 40.0	32.6	[illegible]	[illegible]	12 14.[illegible]	16 17.14	1 9.19	20 13 9.90
	24	20 29 35.56	37.33	19 [illegible]	58.3	[illegible]	[illegible]	12 29.[illegible]	16 17.02	1 9.08	20 17 6.46
	25	20 33 45.35	47.56	18 46 11.1	3.2	[illegible]	[illegible]	12 42.46	16 16.[illegible]	1 8.97	20 21 3.01
	26	20 37 54.55	56.77	−18 30 55.8	47.3	[illegible]	+[illegible]	+12 55.[illegible]	16 16.[illegible]	1 8.86	20 24 59.57
	27	20 42 2.95	5.20	18 15 20.1	11.9	[illegible]	[illegible]	13 6.91	16 16.62	1 8.75	20 28 56.13
	28	20 46 10.56	12.84	17 59 24.6	15.6	[illegible]	[illegible]	13 17.[illegible]	16 16.49	1 8.63	20 32 52.68
	29	20 50 17.56	19.[illegible]	17 43 9.8	0.5	[illegible]	[illegible]	13 28.22	16 16.35	1 8.52	20 36 49.24
	30	20 54 23.96	25.[illegible]	17 26 35.8	26.3	[illegible]	[illegible]	13 37.65	16 16.20	1 8.41	20 40 45.80
	31	20 58 28.93	30.[illegible]	17 9 43.4	33.5	[illegible]	+[illegible]	+13 46.[illegible]	16 16.06	1 8.29	20 44 42.35
Feb	1	21 2 32.[illegible]	35.[illegible]	16 52 32.8	22.7	[illegible]	[illegible]	13 54.07	16 15.91	1 8.17	20 48 38.91
	2	21 6 36.06	38.82	16 34 [illegible]	54.1	[illegible]	[illegible]	14 1.05	16 15.75	1 8.06	20 52 35.46
	3	21 10 39.18	41.55	16 17 18.8	[illegible]	[illegible]	[illegible]	14 7.22	16 15.60	1 7.9[illegible]	20 56 32.02
	4	21 14 41.09	43.47	15 59 16.4	5.5	[illegible]	[illegible]	14 12.55	16 15.44	1 7.83	21 0 28.58
	5	21 18 42.16	44.55	−15 40 57.5	46.4	[illegible]	+[illegible]	+14 17.[illegible]	16 15.27	1 7.72	21 4 25.13
	6	21 22 42.41	44.8[illegible]	15 22 22.6	11.3	[illegible]	[illegible]	14 20.[illegible]	16 15.11	1 7.61	21 8 21.69
	7	21 26 41.[illegible]	44.25	15 3 32.2	20.8	[illegible]	[illegible]	14 23.[illegible]	16 14.94	1 7.5[illegible]	21 12 18.25
	8	21 30 40.48	42.97	14 44 26.6	15.0	[illegible]	[illegible]	14 25.[illegible]	16 14.77	1 7.38	21 16 14.80
	9	21 34 38.[illegible]	[illegible]	14 24 [illegible]	54.7	[illegible]	[illegible]	14 2[illegible]	16 14.59	1 7.27	21 20 11.36
	10	21 38 35.32	37.[illegible]	14 5 31.9	20.0	[illegible]	+[illegible]	+14 2[illegible]	16 14.41	1 7.16	21 24 7.91
	11	21 42 31.55	[illegible]	13 45 43.9	31.5	[illegible]	[illegible]	14 2[illegible]	16 14.23	1 7.05	21 28 4.47
	12	21 46 27.01	[illegible]	13 25 41.8	30.7	[illegible]	[illegible]	14 25.[illegible]	16 14.04	1 6.95	21 32 1.02
	13	21 50 22.70	24.94	13 5 29.1	14.5	[illegible]	[illegible]	14 24.[illegible]	16 13.85	1 6.84	21 35 57.58
	14	21 54 15.61	[illegible]	12 44 59.7	47.3	[illegible]	[illegible]	14 21.4[illegible]	16 13.66	1 6.74	21 39 54.13
	15	21 58 8.93	11.21	12 24 2.[illegible]	7.5	[illegible]	[illegible]	+14 1[illegible]	16 13.46	1 6.63	21 43 50.69
	16	22 2 1.11	3.9[illegible]	−12 3 [illegible]	[illegible]	[illegible]	[illegible]	+14 [illegible]	16 13.25	1 6.53	21 47 47.24

NOTE.—For mean time interval of semidiameter or passing meridian [illegible] from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension. Mean Noon.	Apparent Right Ascension. App. Noon.	Apparent Declination. Mean Noon.	Apparent Declination. App. Noon.	Hourly Motion. Right Ascen.	Hourly Motion. Declination.	Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Feb. 16	22 2 1.31	3.59	−12 3 28.4	16.0	9.672	+52.38	+14 14.02	16 13.25	1 6.53	21 47 47.24
17	22 5 53.07	55.34	11 42 25.4	12.8	9.643	52.85	14 9.23	16 13.04	1 6.43	21 51 43.80
18	22 9 44.15	46.40	11 20 71.3	58.7	9.615	53.30	14 3.74	16 12.82	1 6.33	21 55 40.35
19	22 13 34.57	36.80	10 59 46.6	34.0	9.587	53.75	13 57.60	16 12.60	1 6.23	21 59 36.91
20	22 17 24.33	26.54	10 37 71.4	58.8	9.560	54.17	13 50.80	16 12.38	1 6.14	22 3 33.46
21	22 21 13.46	15.63	−10 16 26.4	13.8	9.534	+54.57	+13 43.37	16 12.15	1 6.05	22 7 30.02
22	22 25 1.97	4.11	9 54 31.8	19.3	9.509	54.96	13 35.31	16 11.92	1 5.96	22 11 26.57
23	22 28 49.87	51.99	9 32 28.0	15.5	9.484	55.34	13 26.66	16 11.69	1 5.87	22 15 23.12
24	22 32 37.19	39.29	9 10 15.6	3.2	9.460	55.69	13 17.43	16 11.45	1 5.78	22 19 19.68
25	22 36 23.96	26.01	8 47 54.9	42.5	9.437	56.03	13 7.63	16 11.21	1 5.70	22 23 16.23
26	22 40 10.17	12.20	− 8 25 26.1	13.9	9.414	+56.35	+12 57.28	16 10.97	1 5.61	22 27 12.79
27	22 43 55.83	57.84	8 2 49.8	37.7	9.393	56.66	12 46.40	16 10.73	1 5.53	22 31 9.34
28	22 47 41.00	42.96	7 39 66.4	54.4	9.372	56.95	12 34.99	16 10.48	1 5.45	22 35 5.90
Mar. 1	22 51 25.65	27.58	7 17 16.4	4.5	9.351	57.21	12 23.10	16 10.23	1 5.38	22 39 2.45
2	22 55 9.82	11.71	6 54 20.1	8.4	9.332	57.46	12 10.71	16 9.98	1 5.31	22 42 59.00
3	22 58 53.52	55.37	− 6 31 18.0	6.4	9.311	+57.70	+11 57.85	16 9.74	1 5.25	22 46 55.56
4	23 2 36.75	38.57	6 7 70.4	59.0	9.292	57.91	11 44.52	16 9.49	1 5.18	22 50 52.11
5	23 6 19.54	21.32	5 44 57.8	46.5	9.274	58.12	11 30.76	16 9.24	1 5.12	22 54 48.66
6	23 10 1.90	3.63	5 21 40.5	29.5	9.257	58.30	11 16.56	16 8.98	1 5.06	22 58 45.22
7	23 13 43.86	45.56	4 58 19.3	8.4	9.241	58.46	11 1.97	16 8.73	1 5.01	23 2 41.77
8	23 17 25.42	27.08	− 4 34 54.1	43.6	9.225	+58.61	+10 46.98	16 8.48	1 4.95	23 6 38.33
9	23 21 6.61	8.23	4 11 25.6	15.3	9.209	58.75	10 31.62	16 8.22	1 4.90	23 10 34.88
10	23 24 47.43	49.02	3 47 54.2	44.2	9.194	58.86	10 15.90	16 7.97	1 4.85	23 14 31.43
11	23 28 27.93	29.46	3 24 20.1	10.3	9.180	58.97	9 59.84	16 7.71	1 4.80	23 18 27.99
12	23 32 8.10	9.59	3 0 43.8	34.2	9.167	59.05	9 43.45	16 7.45	1 4.76	23 22 24.54
13	23 35 47.99	49.43	− 2 36 65.7	56.3	9.156	+59.12	+ 9 26.78	16 7.19	1 4.72	23 26 21.09
14	23 39 27.59	28.98	2 13 26.1	16.9	9.145	59.18	9 9.83	16 6.93	1 4.68	23 30 17.65
15	23 43 6.94	8.29	1 49 45.3	36.4	9.135	59.22	8 52.63	16 6.66	1 4.65	23 34 14.20
16	23 46 46.06	47.36	1 25 63.6	55.1	9.126	59.24	8 35.21	16 6.39	1 4.62	23 38 10.75
17	23 50 24.98	26.23	1 2 21.5	13.2	9.117	59.25	8 17.57	16 6.12	1 4.59	23 42 7.31
18	23 54 3.71	4.92	− 0 38 39.1	31.2	9.110	+59.26	+ 7 59.75	16 5.85	1 4.57	23 46 3.86
19	23 57 42.29	43.46	− 0 14 57.1	49.5	9.105	59.24	7 41.78	16 5.57	1 4.55	23 50 0.41
20	0 1 20.73	21.85	+ 0 8 44.5	51.8	9.100	59.21	7 23.68	16 5.30	1 4.53	23 53 56.97
21	0 4 59.07	60.14	0 32 25.1	32.2	9.095	59.17	7 5.47	16 5.02	1 4.51	23 57 53.52
22	0 8 37.33	38.35	0 56 4.7	11.4	9.093	59.12	6 47.16	16 4.74	1 4.50	0 1 50.07
23	0 12 15.52	16.50	+ 1 19 42.7	49.1	9.091	+59.05	+ 6 28.80	16 4.46	1 4.49	0 5 46.63
24	0 15 53.66	54.59	1 43 18.8	24.9	9.090	58.96	6 10.40	16 4.18	1 4.48	0 9 43.18
25	0 19 31.79	32.68	2 6 52.6	58.4	9.089	58.85	5 51.98	16 3.89	1 4.48	0 13 39.73
26	0 23 9.92	10.76	2 30 23.9	29.4	9.089	58.74	5 33.56	16 3.61	1 4.48	0 17 36.29
27	0 26 48.07	48.86	2 53 52.2	57.4	9.090	58.61	5 15.17	16 3.33	1 4.48	0 21 32.84
28	0 30 26.26	27.01	+ 3 17 17.2	22.0	9.091	+58.47	+ 4 56.81	16 3.04	1 4.48	0 25 29.40
29	0 34 4.51	5.22	3 40 38.5	43.0	9.094	58.31	4 38.51	16 2.76	1 4.49	0 29 25.95
30	0 37 42.83	43.49	4 3 55.6	59.9	9.097	58.12	4 20.20	16 2.48	1 4.50	0 33 22.50
31	0 41 21.20	21.87	4 27 8.5	12.3	9.102	57.91	4 2.16	16 2.20	1 4.51	0 37 19.05
32	0 44 59.80	60.36	4 50 16.4	20.0	9.108	57.72	3 44.14	16 1.92	1 4.53	0 41 15.61
33	0 48 38.46	38.99	+ 5 13 19.2	22.6	9.113	+57.51	+ 3 26.25	16 1.64	1 4.55	0 45 12.16
34	0 52 17.26	17.74	+ 5 36 16.3	19.4	9.119	+57.26	+ 3 8.50	16 1.36	1 4.57	0 49 8.72

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0s.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date	Apparent Right Ascension, Mean Noon	Apparent Right Ascension, App. Noon	Apparent Declination, Mean Noon	Apparent Declination, App. Noon	Hourly Motion, Right Ascen.	Hourly Motion, Declin.	Equation of Time for Apparent Noon	Semi-diameter at Apparent Noon	Sidereal Time of Semi-d. Passing Meridian	Sidereal Time of Mean Noon
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Apr 1	0 44 50.50	50.56	+4 50 16.4	20.0	9.108	+57.72	+3 44.14	16 1.92	1 4.53	0 41 15.61
2	0 48 38.46	38.49	5 13 19.2	22.6	9.113	[illegible]	3 26.25	16 1.64	1 4.55	0 45 12.16
3	0 52 17.26	17.24	5 36 16.3	19.4	9.119	57.08	3 8.50	16 1.36	1 4.57	0 49 8.72
4	0 55 56.41	56.65	5 59 7.6	10.4	9.126	57.00	2 50.91	16 1.09	1 4.60	0 53 5.27
5	0 59 35.33	35.73	6 21 52.6	55.0	9.134	56.73	2 33.48	16 0.82	1 4.63	0 57 1.82
6	1 3 14.64	14.90	+6 44 30.9	33.1	9.142	+56.45	+2 16.24	16 0.55	1 4.66	1 0 58.38
7	1 6 54.15	54.45	7 7 2.2	4.8	9.152	56.16	1 59.20	16 0.28	1 4.69	1 4 54.93
8	1 10 33.88	34.14	7 29 26.2	27.7	9.160	55.84	1 42.37	16 0.01	1 4.73	1 8 51.48
9	1 14 13.84	14.05	7 51 42.4	43.6	9.170	55.51	1 25.78	15 59.74	1 4.77	1 12 48.04
10	1 17 54.04	54.22	8 13 50.5	51.6	9.181	55.17	1 9.44	15 59.47	1 4.81	1 16 44.59
11	1 21 34.52	34.65	+8 35 50.3	51.2	9.191	+54.81	+0 53.36	15 59.21	1 4.85	1 20 41.15
12	1 25 15.29	15.38	8 57 41.5	42.1	9.203	54.44	0 37.58	15 58.94	1 4.90	1 24 37.70
13	1 28 56.34	56.40	9 19 23.7	24.0	9.216	54.06	0 22.10	15 58.68	1 4.94	1 28 34.25
14	1 32 37.74	37.75	9 40 56.5	56.7	9.230	[illegible]	+0 6.93	15 58.42	1 4.99	1 32 30.81
15	1 36 19.46	19.44	10 2 19.7	19.6	9.244	53.26	−0 7.90	15 58.16	1 5.04	1 36 27.36
16	1 40 1.54	1.48	+10 23 33.0	32.6	9.261	+52.84	0 22.37	15 57.89	1 5.10	1 40 23.92
17	1 43 44.00	[illegible]	10 44 36.0	35.5	[illegible]	52.41	0 36.47	15 57.63	1 5.16	1 44 20.47
18	1 47 26.86	26.72	11 5 28.5	27.7	9.296	51.96	0 50.17	15 57.36	1 5.22	1 48 17.03
19	1 51 10.11	9.95	11 26 10.1	9.1	9.318	51.50	1 3.46	15 57.10	1 5.28	1 52 13.58
20	1 54 53.81	53.61	11 46 40.6	39.4	9.339	51.03	1 16.32	15 56.84	1 5.34	1 56 10.14
21	1 58 37.95	37.72	+12 6 59.5	58.2	9.360	[illegible]	1 28.72	15 56.58	1 5.40	2 0 6.69
22	2 2 22.56	22.29	12 27 6.6	5.2	9.382	[illegible]	1 40.68	15 56.32	1 5.47	2 4 3.25
23	2 6 7.64	7.35	12 47 1.6	0.1	[illegible]	[illegible]	1 52.14	[illegible]	1 5.53	2 7 59.80
24	2 9 53.22	52.89	13 6 44.1	42.4	[illegible]	[illegible]	2 3.13	[illegible]	1 5.60	2 11 56.35
25	2 13 39.28	38.92	13 26 13.8	12.0	[illegible]	[illegible]	2 13.62	15 55.54	1 5.67	2 15 52.91
26	2 17 25.85	25.48	+13 45 30.4	28.5	[illegible]	[illegible]	+2 23.60	15 55.29	1 5.74	2 19 49.46
27	2 21 12.[illegible]	11.55	14 4 33.5	31.5	[illegible]	[illegible]	2 33.[illegible]	15 55.04	1 5.82	2 23 46.02
28	2 25 0.58	0.14	14 23 22.7	20.6	[illegible]	[illegible]	2 41.[illegible]	[illegible]	[illegible]	2 27 42.58
29	2 28 48.[illegible]	48.28	14 41 57.8	55.6	[illegible]	[illegible]	2 50.40	15 54.54	1 5.97	2 31 39.13
30	2 32 37.41	37.01	15 0 18.1	16.0	[illegible]	[illegible]	2 58.[illegible]	[illegible]	1 6.04	2 35 35.69
May 1	[illegible]	[illegible]	+15 18 24.0	21.6	[illegible]	[illegible]	−3 5.[illegible]	[illegible]	1 6.12	2 39 32.24
2	[illegible]	15.92	15 36 14.5	12.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 43 28.80
3	[illegible]	6.22	15 53 49.5	47.1	[illegible]	[illegible]	[illegible]	15 53.60	1 6.28	2 47 25.35
4	[illegible]	[illegible]	16 11 8.6	6.2	[illegible]	[illegible]	[illegible]	15 53.37	[illegible]	2 51 21.91
5	[illegible]	[illegible]	16 28 11.6	9.1	[illegible]	[illegible]	[illegible]	15 53.15	1 6.45	2 55 18.47
6	[illegible]	[illegible]	+16 44 58.1	55.6	[illegible]	[illegible]	[illegible]	15 52.93	1 6.53	2 59 15.02
7	[illegible]	[illegible]	17 1 27.7	25.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3 3 11.58
8	[illegible]	[illegible]	17 17 40.[illegible]	37.8	[illegible]	[illegible]	3 41.5	15 52.51	[illegible]	3 7 8.13
9	[illegible]	[illegible]	17 33 35.6	33.1	[illegible]	[illegible]	3 44.41	15 52.30	[illegible]	3 11 4.69
10	3 11 14.44	[illegible]	17 49 13.1	10.6	[illegible]	[illegible]	[illegible]	15 52.10	[illegible]	3 15 1.25
11	[illegible]	[illegible]	+18 4 32.7	30.3	[illegible]	[illegible]	[illegible]	[illegible]	1 6.94	3 18 57.80
12	3 19 4.49	[illegible]	18 19 34.2	31.8	[illegible]	[illegible]	[illegible]	[illegible]	1 7.02	3 22 54.36
13	[illegible]	[illegible]	18 34 17.2	14.7	[illegible]	[illegible]	[illegible]	15 51.42	1 7.10	3 26 50.91
14	[illegible]	[illegible]	18 48 41.3	39.0	[illegible]	[illegible]	3 50.71	[illegible]	1 7.18	3 30 47.47
15	[illegible]	45.13	19 2 46.5	44.2	[illegible]	[illegible]	3 50.29	[illegible]	1 7.26	3 34 44.03
16	[illegible]	[illegible]	+19 16 32.4	30.1	[illegible]	[illegible]	[illegible]	[illegible]	1 7.34	3 38 40.59
17	3 38 43.41	[illegible]	+19 29 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 7.42	3 42 37.14

NOTE.—For mean time interval of semi-diameter passing meridian, subtract 0.18 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension. Mean Noon.	Apparent Right Ascension. App. Noon.	Apparent Declination. Mean Noon.	Apparent Declination. App. Noon.	Hourly Motion. Right Ascen.	Hourly Motion. Declination.	Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
May 17	3 38 49.41	48.79	+19 29 58.8	56.6	9.933	+33.19	−3 47.73	15 50.72	1 7.42	3 42 37.14
18	3 42 48.10	47.47	19 43 5.4	3.4	9.957	32.36	3 45.62	15 50.53	1 7.50	3 46 33.70
19	3 46 47.32	46.70	19 55 52.1	50.1	9.980	31.52	3 42.94	15 50.34	1 7.58	3 50 30.26
20	3 50 47.11	46.50	20 8 18.3	16.4	10.003	30.67	3 39.72	15 50.16	1 7.66	3 54 26.81
21	3 54 47.46	46.86	20 20 24.1	22.3	10.026	29.81	3 35.93	15 49.97	1 7.73	3 58 23.37
22	3 58 48.36	47.77	+20 32 9.0	7.4	10.049	+28.94	−3 31.59	15 49.79	1 7.80	4 2 19.93
23	4 2 49.79	49.21	20 43 33.0	31.4	10.071	28.05	3 26.71	15 49.62	1 7.87	4 6 16.49
24	4 6 51.75	51.19	20 54 35.6	34.2	10.093	27.16	3 21.30	15 49.45	1 7.94	4 10 13.04
25	4 10 54.25	53.69	21 5 16.8	15.4	10.114	26.26	3 15.38	15 49.28	1 8.01	4 14 9.60
26	4 14 57.24	56.71	21 15 36.1	34.7	10.135	25.35	3 8.94	15 49.12	1 8.08	4 18 6.16
27	4 19 0.72	0.20	+21 25 33.5	32.2	10.155	+24.43	−3 2.01	15 48.96	1 8.15	4 22 2.72
28	4 23 4.70	4.20	21 35 8.6	7.4	10.175	23.50	2 54.60	15 48.81	1 8.21	4 25 59.27
29	4 27 9.12	8.64	21 44 21.3	20.2	10.194	22.56	2 46.73	15 48.66	1 8.27	4 29 55.83
30	4 31 14.01	13.55	21 53 11.4	10.4	10.212	21.62	2 38.41	15 48.51	1 8.33	4 33 52.39
31	4 35 19.31	18.88	22 1 38.5	37.7	10.230	20.66	2 29.65	15 48.37	1 8.39	4 37 48.95
June 1	4 39 25.01	24.61	+22 9 42.8	41.9	10.246	+19.70	−2 20.51	15 48.24	1 8.44	4 41 45.51
2	4 43 31.10	30.73	22 17 23.7	23.1	10.262	18.73	2 10.99	15 48.11	1 8.50	4 45 42.06
3	4 47 37.56	37.20	22 24 41.3	40.7	10.276	17.75	2 1.09	15 47.98	1 8.55	4 49 38.62
4	4 51 44.35	44.03	22 31 35.5	34.9	10.290	16.76	1 50.85	15 47.86	1 8.60	4 53 35.18
5	4 55 51.47	51.17	22 38 5.9	5.4	10.303	15.77	1 40.30	15 47.75	1 8.65	4 57 31.74
6	4 59 58.88	58.61	+22 44 12.5	12.1	10.315	+14.78	−1 29.44	15 47.65	1 8.69	5 1 28.30
7	5 4 6.57	6.34	22 49 55.1	54.7	10.326	13.78	1 18.31	15 47.54	1 8.73	5 5 24.86
8	5 8 14.52	14.32	22 55 13.8	13.4	10.336	12.78	1 6.91	15 47.44	1 8.77	5 9 21.41
9	5 12 22.70	22.56	23 0 8.2	8.0	10.346	11.77	0 55.28	15 47.34	1 8.80	5 13 17.97
10	5 16 31.11	30.98	23 4 38.5	38.3	10.355	10.76	0 43.43	15 47.25	1 8.83	5 17 14.53
11	5 20 39.72	39.62	+23 8 44.4	44.3	10.363	+ 9.75	−0 31.39	15 47.16	1 8.86	5 21 11.09
12	5 24 48.49	48.43	23 12 25.9	25.9	10.369	8.73	0 19.16	15 47.07	1 8.88	5 25 7.65
13	5 28 57.43	57.41	23 15 42.9	42.9	10.375	7.71	−0 6.77	15 46.99	1 8.90	5 29 4.21
14	5 33 6.51	6.53	23 18 35.4	35.4	10.381	6.69	+0 5.75	15 46.91	1 8.92	5 33 0.76
15	5 37 15.72	15.77	23 21 3.3	3.3	10.386	5.66	0 18.41	15 46.83	1 8.94	5 36 57.32
16	5 41 25.04	25.12	+23 23 6.5	6.5	10.390	+ 4.63	+0 31.16	15 46.76	1 8.95	5 40 53.88
17	5 45 34.43	34.56	23 24 44.9	44.9	10.393	3.60	0 44.00	15 46.69	1 8.96	5 44 50.44
18	5 49 43.91	44.06	23 25 58.7	58.7	10.395	2.56	0 56.90	15 46.62	1 8.97	5 48 47.00
19	5 53 53.42	53.61	23 26 47.6	47.6	10.397	1.53	1 9.86	15 46.56	1 8.97	5 52 43.56
20	5 58 2.95	3.19	23 27 11.8	11.8	10.397	+ 0.50	1 22.84	15 46.50	1 8.97	5 56 40.12
21	6 2 12.49	12.77	+23 27 11.0	11.0	10.397	− 0.54	+1 35.83	15 46.44	1 8.97	6 0 36.67
22	6 6 22.00	22.31	23 26 45.6	45.6	10.396	1.57	1 48.79	15 46.38	1 8.96	6 4 33.23
23	6 10 31.48	31.83	23 25 55.3	55.3	10.393	2.61	2 1.71	15 46.33	1 8.95	6 8 29.79
24	6 14 40.90	41.28	23 24 40.2	40.0	10.390	3.64	2 14.56	15 46.29	1 8.94	6 12 26.35
25	6 18 50.21	50.62	23 23 0.3	0.1	10.386	4.67	2 27.32	15 46.25	1 8.92	6 16 22.91
26	6 22 59.40	59.86	+23 20 55.7	55.5	10.381	− 5.69	+2 39.96	15 46.22	1 8.90	6 20 19.47
27	6 27 8.46	8.96	23 18 26.5	26.1	10.373	6.72	2 52.46	15 46.19	1 8.87	6 24 16.02
28	6 31 17.34	17.87	23 15 32.8	32.3	10.365	7.74	3 4.78	15 46.17	1 8.84	6 28 12.58
29	6 35 26.03	26.59	23 12 14.4	13.9	10.357	8.76	3 16.91	15 46.15	1 8.81	6 32 9.14
30	6 39 34.48	35.08	23 8 31.6	31.0	10.347	9.78	3 28.82	15 46.14	1 8.78	6 36 5.70
31	6 43 42.71	43.32	+23 4 24.6	23.9	10.336	−10.79	+3 40.47	15 46.14	1 8.75	6 40 2.26
32	6 47 50.63	51.29	+22 59 53.4	52.6	10.324	−11.80	+3 51.84	15 46.14	1 8.71	6 43 58.82

NOTE.—For mean time interval of semidiameter passing meridian subtract 0s.19 from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date		Apparent Right Ascension		Apparent Declination		Hourly Motion		Equation of Time at Apparent Noon	Semi-diameter of Apparent Noon	Sidereal Time of Semi-diameter Passing Meridian	Sidereal Time of Mean Noon
		Mean Noon	App. Noon	Mean Noon	App. Noon	Right Ascension	Declination				
		h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
July	1	6 43 42.71	41 12	+23 4 24.6	23.9	[illegible]	[illegible]	+3 40.47	15 46.24	1 8.75	6 40 2.86
	2	6 47 50.61	[illegible]	22 59 55.4	52.6	[illegible]	[illegible]	3 51.84	15 46.24	1 8.72	6 43 59.42
	3	6 51 58.[illegible]	[illegible]	22 54 [illegible]	[illegible]	[illegible]	[illegible]	4 2.[illegible]	15 46.24	1 8.67	6 47 55.97
	4	6 56 5.57	[illegible]	22 49 [illegible]	37.5	[illegible]	[illegible]	4 13.[illegible]	15 46.25	1 8.63	6 51 52.03
	5	7 0 12.54	[illegible]	22 43 55.7	54.7	[illegible]	[illegible]	4 24.[illegible]	15 46.27	1 8.58	6 55 48.49
	6	7 4 19.13	10.91	+22 37 40.1	47.9	[illegible]	[illegible]	+4 34.12	15 46.19	1 8.53	6 59 45.05
	7	7 8 25.34	[illegible]	22 31 18.9	17.5	[illegible]	16.71	4 41.75	15 46.22	1 8.48	7 3 41.61
	8	7 12 31.14	31 [illegible]	22 24 25.4	[illegible]	[illegible]	[illegible]	4 51.[illegible]	15 46.25	1 8.43	7 7 38.17
	9	7 16 36.52	[illegible]	22 17 8.5	7.2	[illegible]	[illegible]	5 1.[illegible]	15 46.28	1 8.37	7 11 34.73
	10	7 20 41.47	42.34	22 9 29.2	27.5	[illegible]	[illegible]	5 10.21	15 46.32	1 8.32	7 15 31.28
	11	7 24 45.[illegible]	[illegible]	+22 1 26.[illegible]	25.1	[illegible]	[illegible]	+5 19.14	15 46.36	1 8.25	7 19 27.84
	12	7 28 4[illegible]	[illegible]	21 52 [illegible]	59.9	[illegible]	[illegible]	5 25.63	15 46.41	1 8.19	7 23 24.40
	13	7 32 53.53	54.4[illegible]	21 44 14.[illegible]	12.3	[illegible]	[illegible]	5 32.61	15 46.46	1 8.12	7 27 20.96
	14	7 36 56.[illegible]	[illegible]	21 35 4.[illegible]	2.5	[illegible]	[illegible]	5 39.12	15 46.51	1 8.05	7 31 17.51
	15	7 40 59.18	[illegible]	21 25 32.[illegible]	30.6	[illegible]	[illegible]	5 45.14	15 46.56	1 7.98	7 35 14.07
	16	7 45 1.24	2.21	+21 15 33.4	37.0	[illegible]	[illegible]	+5 50.64	15 46.62	1 7.91	7 39 10.63
	17	7 49 2.[illegible]	3.[illegible]	21 5 [illegible]	21.5	[illegible]	[illegible]	5 55.65	15 46.[illegible]	1 7.83	7 43 7.19
	18	7 53 3.[illegible]	4.[illegible]	20 54 [illegible]	44.[illegible]	[illegible]	[illegible]	6 0.12	15 46.[illegible]	1 7.75	7 47 3.75
	19	7 57 4.[illegible]	[illegible]	20 43 [illegible]	46.5	[illegible]	[illegible]	6 4.08	15 46.[illegible]	1 7.67	7 51 0.30
	20	8 1 4.[illegible]	[illegible]	20 32 [illegible]	27.4	[illegible]	[illegible]	6 7.[illegible]	15 46.[illegible]	1 7.59	7 54 56.86
	21	8 5 3.79	4.[illegible]	+20 [illegible]	47.5	[illegible]	[illegible]	+6 1[illegible].38	15 46.[illegible]	1 7.51	7 58 53.42
	22	8 9 2.67	[illegible]	20 8 [illegible]	47.0	[illegible]	[illegible]	6 12.71	15 47.04	1 7.43	8 2 49.97
	23	8 13 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6 14.47	15 47.12	1 7.35	8 6 46.53
	24	8 16 [illegible]	[illegible]	19 43 4[illegible]	45.4	[illegible]	[illegible]	6 15.[illegible]	15 47.21	1 7.27	8 10 43.09
	25	8 20 55.05	56.08	19 [illegible]	44.2	[illegible]	[illegible]	6 16.[illegible]	15 47.[illegible]	1 7.18	8 14 39.65
	26	8 24 [illegible]	[illegible]	[illegible]	24.9	[illegible]	[illegible]	+6 [illegible]	15 47.40	1 7.10	8 18 36.20
	27	8 28 48.90	[illegible]	[illegible]	45.5	[illegible]	[illegible]	6 1[illegible]	15 47.51	1 7.01	8 22 32.76
	28	8 32 44.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6 14.71	15 47.[illegible]	1 6.91	8 26 29.32
	29	8 36 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6 12.[illegible]	15 47.74	1 6.84	8 30 25.87
	30	8 40 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6 1[illegible]	15 47.86	1 6.76	8 34 22.43
	31	8 44 [illegible]	[illegible]	+18 6 [illegible]	[illegible]	[illegible]	[illegible]	+6 [illegible]	15 47.98	1 6.67	8 38 18.[illegible]
Aug	1	8 48 [illegible]	[illegible]	[illegible]	51.2	[illegible]	[illegible]	6 4.13	15 48.11	1 6.59	8 42 15.54
	2	8 52 12.08	[illegible]	17 [illegible]	22.5	[illegible]	[illegible]	5 59.90	15 48.24	1 6.[illegible]	8 46 12.10
	3	8 56 [illegible]	[illegible]	17 [illegible]	37.1	[illegible]	[illegible]	5 55.16	15 48.[illegible]	1 6.42	8 50 8.66
	4	9 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5 4[illegible]	15 48.[illegible]	1 6.33	8 54 5.21
	5	9 3 45.[illegible]	[illegible]	+17 4[illegible]	[illegible]	[illegible]	[illegible]	+5 43.71	15 48.[illegible]	1 6.24	8 58 1.77
	6	9 7 [illegible]	[illegible]	16 50 [illegible]	[illegible]	[illegible]	[illegible]	5 37.0[illegible]	15 48.[illegible]	1 6.15	9 1 58.33
	7	9 11 [illegible]	[illegible]	16 [illegible]	[illegible]	[illegible]	[illegible]	5 [illegible]	15 48.[illegible]	1 6.[illegible]	9 5 54.88
	8	9 15 [illegible]	[illegible]	16 [illegible]	[illegible]	[illegible]	[illegible]	5 21.70	15 49.[illegible]	1 5.[illegible]	9 9 51.44
	9	[illegible]	[illegible]	15 [illegible]	[illegible]	[illegible]	[illegible]	5 13.54	15 49.[illegible]	1 5.[illegible]	9 13 47.[illegible]
	10	9 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+5 4.58	15 49.[illegible]	1 5.82	9 17 44.55
	11	9 [illegible]	[illegible]	15 [illegible]	[illegible]	[illegible]	[illegible]	4 54.[illegible]	15 49.[illegible]	1 5.74	9 21 41.10
	12	9 [illegible]	[illegible]	14 [illegible]	[illegible]	[illegible]	[illegible]	4 44.[illegible]	15 49.[illegible]	1 5.66	9 25 37.66
	13	9 34 8.35	[illegible]	14 [illegible]	[illegible]	[illegible]	[illegible]	4 34.[illegible]	15 49.[illegible]	1 5.58	9 29 34.22
	14	9 3[illegible]	[illegible]	14 [illegible]	[illegible]	[illegible]	[illegible]	4 22.[illegible]	15 [illegible]	1 5.[illegible]	9 33 30.77
	15	9 41 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+4 [illegible]	15 [illegible]	1 5.43	9 37 27.33
	16	9 45 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 [illegible]	9 41 23.[illegible]

Note.—[illegible] subtract [illegible] from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension. Mean Noon.	Apparent Right Ascension. App. Noon.	Apparent Declination. Mean Noon.	Apparent Declination. App. Noon.	Hourly Motion. Right Ascen.	Hourly Motion. Declination.	Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Aug. 16	9 45 22.61	23.23	+13 31 12.1	9.0	9.333	−47.79	+ 3 58.70	15 50.51	1 5.35	9 41 23.88
17	9 49 6.37	6.95	13 11 58.7	55.7	9.313	48.32	3 45.90	15 50.69	1 5.28	9 45 20.44
18	9 52 49.64	50.20	12 52 32.5	29.6	9.293	48.84	3 32.62	15 50.88	1 5.21	9 49 16.99
19	9 56 32.44	32.95	12 32 54.0	51.2	9.274	49.35	3 18.86	15 51.06	1 5.14	9 53 13.55
20	10 0 14.77	15.25	12 13 3.3	0.7	9.255	49.85	3 4.64	15 51.25	1 5.07	9 57 10.10
21	10 3 56.66	57.10	+11 52 60.9	58.5	9.236	−50.34	+ 2 49.98	15 51.44	1 5.00	10 1 6.66
22	10 7 38.11	38.51	11 32 47.1	44.9	9.218	50.80	2 34.88	15 51.64	1 4.93	10 5 3.21
23	10 11 19.14	19.50	11 12 22.2	20.2	9.201	51.25	2 19.35	15 51.84	1 4.87	10 8 59.77
24	10 14 59.76	60.08	10 51 46.6	44.8	9.184	51.69	2 3.41	15 52.04	1 4.81	10 12 56.32
25	10 18 39.97	40.25	10 30 60.5	58.9	9.168	52.13	1 47.08	15 52.25	1 4.75	10 16 52.87
26	10 22 19.80	20.03	+10 10 4.2	3.0	9.152	−52.54	+ 1 30.35	15 52.47	1 4.69	10 20 49.43
27	10 25 59.24	59.43	9 48 58.4	57.3	9.136	52.94	1 13.25	15 52.69	1 4.63	10 24 45.98
28	10 29 38.33	38.47	9 27 43.1	42.3	9.121	53.33	0 55.78	15 52.91	1 4.58	10 28 42.54
29	10 33 17.05	17.15	9 6 18.8	18.2	9.107	53.69	0 37.96	15 53.13	1 4.53	10 32 39.09
30	10 36 55.44	55.49	8 44 45.8	45.5	9.093	54.04	0 19.80	15 53.36	1 4.48	10 36 35.64
31	10 40 33.50	33.51	+8 23 4.4	4.4	9.079	−54.38	+ 0 1.31	15 53.59	1 4.43	10 40 32.20
Sept. 1	10 44 11.24	11.20	8 1 15.1	15.4	9.066	54.72	− 0 17.49	15 53.82	1 4.39	10 44 28.75
2	10 47 48.70	48.61	7 39 18.1	18.8	9.054	55.03	0 36.60	15 54.06	1 4.35	10 48 25.31
3	10 51 25.87	25.73	7 17 13.8	14.8	9.043	55.32	0 55.98	15 54.30	1 4.31	10 52 21.86
4	10 55 2.76	2.57	6 55 2.6	3.8	9.032	55.60	1 15.64	15 54.55	1 4.27	10 56 18.42
5	10 58 39.41	39.18	+6 32 44.6	46.0	9.022	−55.87	− 1 35.54	15 54.79	1 4.24	11 0 14.97
6	11 2 15.83	15.54	6 10 20.2	22.1	9.013	56.13	1 55.67	15 55.04	1 4.21	11 4 11.52
7	11 5 52.04	51.70	5 47 49.8	52.0	9.004	56.38	2 16.00	15 55.29	1 4.19	11 8 8.08
8	11 9 28.06	27.67	5 25 13.8	16.4	8.997	56.62	2 36.53	15 55.54	1 4.17	11 12 4.63
9	11 13 3.90	3.46	5 2 32.4	35.2	8.991	56.83	2 57.23	15 55.79	1 4.15	11 16 1.18
10	11 16 39.61	39.11	+4 39 45.7	48.9	8.985	−57.04	− 3 18.07	15 56.05	1 4.13	11 19 57.74
11	11 20 15.19	14.64	4 16 54.3	57.8	8.980	57.24	3 39.04	15 56.30	1 4.11	11 23 54.29
12	11 23 50.67	50.07	3 53 58.2	62.2	8.976	57.42	4 0.12	15 56.55	1 4.10	11 27 50.85
13	11 27 26.08	25.43	3 30 58.0	62.2	8.974	57.59	4 21.26	15 56.81	1 4.09	11 31 47.40
14	11 31 1.42	0.72	3 7 53.9	58.5	8.972	57.75	4 42.46	15 57.06	1 4.08	11 35 43.95
15	11 34 36.73	35.98	+2 44 46.1	51.1	8.971	57.89	− 5 3.69	15 57.32	1 4.07	11 39 40.50
16	11 38 12.04	11.23	2 21 35.2	40.4	8.971	58.02	5 24.94	15 57.58	1 4.07	11 43 37.06
17	11 41 47.36	46.50	1 58 21.2	26.7	8.972	58.13	5 46.16	15 57.83	1 4.07	11 47 33.61
18	11 45 22.72	21.81	1 35 4.5	10.4	8.974	58.24	6 7.35	15 58.09	1 4.07	11 51 30.17
19	11 48 58.12	57.17	1 11 45.5	51.9	8.977	58.33	6 28.50	15 58.35	1 4.08	11 55 26.72
20	11 52 33.60	32.60	+0 48 24.6	31.3	8.980	−58.40	− 6 49.56	15 58.61	1 4.09	11 59 23.27
21	11 56 9.19	8.13	0 25 2.1	9.1	8.985	58.46	7 10.53	15 58.88	1 4.10	12 3 19.82
22	11 59 44.89	43.76	+0 1 38.3	45.7	8.990	58.51	7 31.38	15 59.14	1 4.11	12 7 16.38
23	12 3 20.71	19 53	−0 21 46.3	38.6	8.996	58.53	7 52.11	15 59.41	1 4.13	12 11 12.93
24	12 6 56.69	55.46	0 45 11.5	3.4	9.002	58.54	8 12.68	15 59.68	1 4.16	12 15 9.48
25	12 10 32.84	31.55	1 8 36.8	28.5	9.010	58.55	8 33.08	15 59.95	1 4.19	12 19 6.04
26	12 14 9 16	7.84	1 32 2.0	53.2	9.018	58.53	8 53.30	16 0.23	1 4.22	12 23 2.59
27	12 17 45.69	44.31	1 55 26.4	17.5	9.027	58.50	9 13.31	16 0.50	1 4.25	12 26 59.14
28	12 21 22.45	21.01	2 18 49.0	40.6	9.036	58.45	9 33.12	16 0.78	1 4.28	12 30 55.70
29	12 24 59.43	57.94	2 42 12.1	2.5	9.046	58.38	9 52.69	16 1.06	1 4.32	12 34 52.25
30	12 28 36.67	35.14	3 5 32.5	22.6	9.057	58.30	10 11.99	16 1.34	1 4.36	12 38 48.80
31	12 32 14.18	12.60	3 28 50.9	40.6	9.068	58.21	10 31.03	16 1.62	1 4.40	12 42 45.36

NOTE.—For mean time interval of semidiameter passing meridian, subtract $0^s.18$ from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date	Apparent Right Ascension, Mean Noon	Apparent Right Ascension, App. Noon	Apparent Declination, Mean Noon	Apparent Declination, App. Noon	Hourly Motion, Right Ascen.	Hourly Motion, Declination	Equation of Time App. Noon	Semi-diameter of Apparent Noon	Sidereal Time of Semi-d. Passing Meridian	Sidereal Time of Mean Noon
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Oct. 1	12 32 14.18	12.[illegible]	− 3 28 50.9	40.6	9.[illegible]	58.11	10 11.03	16 1.62	1 4.40	12 42 45.56
2	12 35 51.[illegible]	50.[illegible]	3 51 66.8	56.[illegible]	9.[illegible]	58.10	10 40.[illegible]	16 1.90	1 4.45	12 46 41.91
3	12 39 30.[illegible]	28.4	4 15 19.9	9.1	[illegible]	[illegible]	11 8.29	16 2.1[illegible]	1 4.[illegible]	12 50 38.46
4	12 43 8.53	6.[illegible]	4 38 29.8	18.9	9.1[illegible]	57.[illegible]	11 36.15	16 2.47	1 4.55	12 54 35.02
5	12 46 47.31	45.51	5 1 36.2	24.8	9.[illegible]	[illegible]	11 44.11	16 2.75	1 4.[illegible]	12 58 31.57
6	12 50 26.47	24.6[illegible]	5 24 38.7	27.2	9.1[illegible]	[illegible]	12 1.52	16 3.03	1 4.[illegible]	13 2 28.12
7	12 54 5.99	4.11	5 47 37.0	25.2	9.1[illegible]	[illegible].33	12 18.54	16 3.31	1 4.72	13 6 24.68
8	12 57 45.95	44.02	6 10 30.8	18.8	9.1[illegible]	57.14	12 35.13	16 3.59	1 4.78	13 10 21.23
9	13 1 26.34	24.36	6 33 19.8	7.6	9.[illegible]	56.[illegible]	12 51.31	16 3.87	1 4.85	13 14 17.78
10	13 5 7.18	5.16	6 55 63.2	50.8	9.[illegible]	56.[illegible]	13 7.02	16 4.15	1 4.92	13 18 14.34
11	13 8 48.50	46.44	7 18 41.2	28.6	9.[illegible]	[illegible]	13 22.26	16 4.43	1 4.99	13 22 10.89
12	13 12 30.32	28.21	7 41 13.3	0.6	9.[illegible]	[illegible]	13 36.99	16 4.70	1 5.07	13 26 7.45
13	13 16 12.67	10.52	8 3 [illegible]	26.1	9.[illegible]	[illegible]	13 51.21	16 4.97	1 5.15	13 30 4.00
14	13 19 55.56	53.[illegible]	8 25 58.2	45.1	9.[illegible]	[illegible]	14 4.87	16 5.24	1 5.23	13 34 0.55
15	13 23 39.01	36.[illegible]	8 47 70.1	57.1	9.[illegible]	[illegible]	14 17.97	16 5.51	1 5.31	13 37 57.11
16	13 27 23.06	20.[illegible]	9 10 15.0	1.7	9.[illegible]	[illegible]	14 30.48	16 5.78	1 5.39	13 41 53.66
17	13 31 7.[illegible]	5.41	9 31 71.[illegible]	58.4	9.[illegible]	[illegible]	14 42.40	16 6.04	1 5.48	13 45 50.22
18	13 34 52.[illegible]	50.[illegible]	9 53 [illegible]	47.1	9.[illegible]	[illegible]	14 53.[illegible]	16 6.31	1 5.57	13 49 46.77
19	13 38 39.[illegible]	36.33	10 15 40.9	27.2	9.[illegible]	[illegible]	15 4.31	16 6.5[illegible]	1 5.66	13 53 43.32
20	13 42 25.48	23.08	10 36.72.[illegible]	58.4	9.[illegible]	[illegible]	15 14.[illegible]	16 6.83	1 5.75	13 57 39.88
21	13 46 12.74	10.31	10 58 13.8	20.1	9.[illegible]	[illegible]	15 23.[illegible]	16 7.[illegible]	1 5.85	14 1 36.43
22	13 49 [illegible]	58.21	11 19 45.8	32.2	9.[illegible]	[illegible]	15 32.23	16 7.35	1 5.95	14 5 32.99
23	13 53 49.11	46.[illegible]	11 40 4[illegible]	14.0	9.[illegible]	[illegible]	15 4[illegible]	16 7.[illegible]	1 6.05	14 9 29.54
24	13 57 38.[illegible]	36.15	12 1 39.9	25.2	9.[illegible]	[illegible]	15 4[illegible]	16 7.[illegible]	1 6.15	14 13 26.09
25	14 1 28.74	26.19	12 22 1[illegible]	5.3	9.[illegible]	[illegible]	15 5[illegible]	16 8.14	1 6.26	14 17 22.65
26	14 5 19.33	16.[illegible]	−12 42 4[illegible]	14.0	9.[illegible]	[illegible]	15 [illegible]	16 8.40	1 6.36	14 21 19.20
27	14 9 11.07	8.49	13 2[illegible]	[illegible]	9.[illegible]	[illegible]	16 4.[illegible]	16 8.[illegible]	1 6.47	14 25 15.76
28	14 13 [illegible]	[illegible]	13 22 [illegible]	55.2	9.[illegible]	[illegible]	16 8.91	16 8.[illegible]	1 6.58	14 29 12.31
29	14 1[illegible]	[illegible]	13 42 [illegible]	4[illegible]	9.[illegible]	[illegible]	16 12.41	16 9.17	1 6.69	14 33 8.87
30	14 2[illegible]	47.58	14 2 3[illegible]	[illegible]	9.[illegible]	[illegible]	16 15.19	16 9.43	1 6.80	14 37 5.42
31	14 24 44.[illegible]	42.14	−14 21 6[illegible]	[illegible]	9.[illegible]	[illegible]	16 1[illegible]	16 9.[illegible]	1 6.91	14 41 1.98
Nov. 1	14 28 4[illegible]	3[illegible]	14 41 14.[illegible]	[illegible]	9.[illegible]	[illegible]	16 [illegible]	16 9.94	1 7.03	14 44 58.54
2	14 32 [illegible]	33.6[illegible]	14 59 [illegible]	58.4	9.[illegible]	[illegible]	16 18.[illegible]	16 1[illegible]	1 7.14	14 48 55.09
3	14 3[illegible]	30.[illegible]	15 [illegible]	[illegible]	9.[illegible]	[illegible]	16 [illegible]	[illegible]	1 7.[illegible]	14 52 51.64
4	14 [illegible]	28.[illegible]	15 3[illegible]	7.2	9.[illegible]	[illegible]	16 17.[illegible]	[illegible]	1 7.[illegible]	14 56 48.20
5	14 44 [illegible]	[illegible]	15 5[illegible]	18.5	9.[illegible]	[illegible]	16 1[illegible]	16 10.[illegible]	1 7.[illegible]	15 0 44.75
6	14 4[illegible]	[illegible]	16 [illegible]	13.[illegible]	9.[illegible]	[illegible]	16 12.45	16 11.[illegible]	1 7.[illegible]	15 4 41.31
7	14 5[illegible]	[illegible]	16 [illegible]	[illegible]	[illegible]	[illegible]	16 8.8[illegible]	16 11.42	1 7.[illegible]	15 8 37.[illegible]
8	14 5[illegible]	[illegible]	16 48 [illegible]	15.2	[illegible]	[illegible]	16 4.[illegible]	16 11.6[illegible]	1 [illegible]	15 12 34.42
9	15 [illegible]	[illegible]	17 5 [illegible]	[illegible]	[illegible]	[illegible]	15 [illegible]	16 11.[illegible]	1 [illegible]	15 1[illegible]
10	15 4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15 52.[illegible]	16 12.11	1 [illegible]	15 20 27.[illegible]
11	15 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15 45.31	16 12.[illegible]	1 [illegible]	15 24 24.09
12	15 [illegible]	[illegible]	17 [illegible]	49.[illegible]	[illegible]	[illegible]	15 [illegible]	16 12.[illegible]	1 [illegible]	15 2[illegible]
13	15 [illegible]	[illegible]	18 [illegible]	42.[illegible]	[illegible]	[illegible]	15 [illegible]	16 12.[illegible]	1 [illegible]	15 32 17.[illegible]
14	15 [illegible]	[illegible]	18 [illegible]	[illegible]	[illegible]	[illegible]	15 [illegible]	16 1[illegible]	1 [illegible]	15 3[illegible]
15	15 24 [illegible]	[illegible]	18 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16 1[illegible]	1 8.[illegible]	15 4[illegible] 10.[illegible]
16	15 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 [illegible]	15 44 [illegible]

NOTE.— [illegible] from the sidereal interval.

FOR WASHINGTON MEAN AND APPARENT NOON.

Date.	Apparent Right Ascension.		Apparent Declination.		Hourly Motion.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. Passing Meridian.	Sidereal Time of Mean Noon.
	Mean Noon.	App. Noon.	Mean Noon.	App. Noon.	Right Ascen.	Decli-nation.				
	h m s	s	° ′ ″	″	s	″	m s	′ ″	m s	h m s
Nov. 16	15 29 9.00	6.42	-18 56 35.1	26.0	10.346	-36.85	-14 58.00	16 13.36	1 8.80	15 44 6.88
17	15 33 17.72	15.16	19 11 9.4	0.5	10.381	36.00	14 45.83	16 13.56	1 8.91	15 48 3.43
18	15 37 27.30	24.76	19 25 23.0	14.4	10.416	35.14	14 32.83	16 13.76	1 9.02	15 51 59.99
19	15 41 37.71	35.21	19 39 15.5	7.4	10.451	34.25	14 18.97	16 13.95	1 9.13	15 55 56.54
20	15 45 48.95	46.49	19 52 46.7	39.0	10.485	33.35	14 4.30	16 14.14	1 9.24	15 59 53.10
21	15 49 61.03	58.60	-20 5 56.2	48.7	10.519	-32.44	-13 48.78	16 14.32	1 9.35	16 3 49.66
22	15 54 13.90	11.52	20 18 43.5	36.4	10.553	31.50	13 32.49	16 14.51	1 9.46	16 7 46.22
23	15 58 27.56	25.23	20 31 8.3	1.6	10.586	30.56	13 15.38	16 14.69	1 9.57	16 11 42.77
24	16 2 42.01	39.71	20 43 10.3	4.0	10.617	29.60	12 57.49	16 14.87	1 9.67	16 15 39.33
25	16 6 57.20	54.96	20 54 49.0	43.1	10.648	28.63	12 38.86	16 15.04	1 9.77	16 19 35.89
26	16 11 13 12	10.93	-21 5 64.2	58.6	10.678	-27.64	-12 19.50	16 15.21	1 9.87	16 23 32.45
27	16 15 29.77	27.63	21 16 55.6	50.3	10.708	26.64	11 59.40	16 15.38	1 9.97	16 27 29.00
28	16 19 47.11	45.02	21 27 22.7	17.8	10.736	25.63	11 38.63	16 15.55	1 10.07	16 31 25.56
29	16 24 5.12	3.09	21 37 25.3	20.8	10.763	24.59	11 17.17	16 15.71	1 10.16	16 35 22.12
30	16 28 23.77	21.81	21 46 63.1	58.9	10.790	23.55	10 55.08	16 15.87	1 10.25	16 39 18.68
Dec. 1	16 32 43.06	41.16	-21 56 16.0	12.0	10.816	-22.51	-10 32.34	16 16.03	1 10.34	16 43 15.23
2	16 37 2.96	1.12	22 4 63.4	59.6	10.841	21.45	10 9.01	16 16.18	1 10.43	16 47 11.79
3	16 41 23.43	21.66	22 13 25.3	21.9	10.865	20.37	9 45.09	16 16.33	1 10.51	16 51 8.35
4	16 45 44.46	42.76	22 21 21.4	18.4	10.888	19.29	9 20.62	16 16.47	1 10.58	16 55 4.91
5	16 50 6.03	4.39	22 28 51.3	48.7	10.909	18.20	8 55.60	16 16.61	1 10.65	16 59 1.47
6	16 54 28.11	26.56	-22 35 55.1	52.6	10.930	-17.10	- 8 30.07	16 16.74	1 10.72	17 2 58.03
7	16 58 50.69	49.21	22 42 32.1	30.0	10.950	16.00	8 4.04	16 16.87	1 10.79	17 6 54.58
8	17 3 13.72	12.33	22 48 42.7	40.7	10.969	14.89	7 37.55	16 16.99	1 10.85	17 10 51.14
9	17 7 37.21	35.89	22 54 26.1	24.5	10.988	13.76	7 10.62	16 17.10	1 10.91	17 14 47.70
10	17 11 61.12	59.89	22 59 42.5	41.1	11.004	12.62	6 43.27	16 17.21	1 10.97	17 18 44.26
11	17 16 25.42	24.27	-23 4 31.7	30.5	11.020	-11.48	- 6 15.52	16 17.31	1 11.02	17 22 40.82
12	17 20 50.08	49.01	23 8 53.4	52.4	11.035	10.33	5 47.41	16 17.41	1 11.06	17 26 37.37
13	17 25 15.09	14.11	23 12 47.6	46.6	11.049	9.18	5 18.96	16 17 50	1 11.10	17 30 33.93
14	17 29 40.41	39.51	23 16 13.8	13.2	11.062	8.02	4 50.19	16 17.59	1 11.14	17 34 30.49
15	17 34 6.00	5.19	23 19 12.4	11.9	11.073	6.86	4 21.13	16 17.67	1 11.17	17 38 27.05
16	17 38 31.85	31.14	-23 21 42.9	42.5	11.082	- 5.70	- 3 51.84	16 17.74	1 11.20	17 42 23.61
17	17 42 57.92	57.30	23 23 45.4	45.1	11.090	4.52	3 22.32	16 17.81	1 11.22	17 46 20.17
18	17 47 24.16	23.62	23 25 19.7	19.5	11.096	3.34	2 52.62	16 17.87	1 11.24	17 50 16.73
19	17 51 50.56	50.12	23 26 25.7	25.6	11.102	2.17	2 22.78	16 17.93	1 11.25	17 54 13.28
20	17 56 17.05	16.71	23 27 3.4	3.3	11.106	- 0.99	1 52.82	16 17.99	1 11.26	17 58 9.84
21	18 0 43.64	43.37	-23 27 12.9	12.9	11.109	+ 0.19	- 1 22.79	16 18.04	1 11.27	18 2 6.40
22	18 5 10.24	10.08	23 26 54.0	54.0	11.109	1.37	0 52.74	16 18.09	1 11.27	18 6 2.96
23	18 9 36.85	36.78	23 26 6.8	6.8	11.108	2.55	- 0 22.68	16 18.14	1 11.27	18 9 59.52
24	18 14 3.42	3.44	23 24 51.2	51.2	11.105	3.73	+ 0 7.34	16 18.18	1 11.26	18 13 56.08
25	18 18 29.88	30.00	23 23 7.5	7.4	11.101	4.91	0 37.27	16 18.22	1 11.25	18 17 52.64
26	18 22 56.24	56.45	23 20 55.4	55.3	11.095	+ 6.08	+ 1 7.07	16 18.26	1 11.23	18 21 49.19
27	18 27 22.45	22.75	23 18 15.3	15.1	11.087	7.25	1 36.73	16 18.29	1 11.21	18 25 45.75
28	18 31 48.45	48.84	23 15 7.1	6.8	[illegible]	8.42	2 6.18	16 18.31	1 11.18	18 29 42.31
29	18 36 14.22	14.71	23 11 30.9	30.5	11.068	9.58	2 35.41	16 18.33	1 11.15	18 33 38.87
30	18 40 39 74	40.30	23 7 20.9	26.4	11.057	10.74	3 4.36	16 18.35	1 11.11	18 37 35.43
31	18 45 4.94	5.59	-23 2 55.3	54.6	11.045	+11.89	+ 3 33.03	16 18.36	1 11.07	18 41 31.99
32	18 49 29.82	30.50	-22 57 56.1	55.2	11.032	+13.03	+ 4 1.37	16 18 37	1 11.03	18 45 [illegible]

NOTE.—For mean time interval of semidiameter passing meridian, subtract 0s.19 from the sidereal interval.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 H. of Long.	Right Ascension of Centre.	Diff. for 1 H. of Long.	Geocentric Declination of Centre.	Diff. for 1 H. of Long.	Sid. Time of Semi-diam. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limb.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Jan 1	23 33.52	2.17	18 23 48.72	[illegible]	−26 42 7.3	[illegible]	75.61	16 8.8	59 9.0	II N.
3	0 33.44	[illegible]	19 27 50.83	[illegible]	24 11 25.1	[illegible]	73.[illegible]	15 5[illegible]	58 33.1	I. N.
4	1 28.64	[illegible]	20 27 8.52	141.[illegible]	−20 12 41.5	[illegible]	69.[illegible]	15 4[illegible]	57 42.5	I. S.
5	2 18.84	[illegible]	21 21 25.25	[illegible]	−15 15 45.4	[illegible]	[illegible]	15 [illegible]	57 2.3	I. S.
6	3 4.75	[illegible]	22 11 23.93	[illegible]	− 9 50 5[illegible]	[illegible]	64.41	15 21.[illegible]	[illegible] 15.6	I. S.
7	3 47.53	1.7[illegible]	22 58 14.34	114.[illegible]	3 51 11.4	[illegible]	62.72	15 [illegible]	55 [illegible]	I. S.
8	4 28.45	[illegible]	23 43 12.84	112.[illegible]	+ 1 57 41.2	[illegible]	61.92	15 0.4	54 57.6	I. S
9	5 8.75	[illegible]	0 27 33.51	111.[illegible]	7 35 9.7	[illegible]	61.93	14 5[illegible]	54 51.6	I. S
10	5 49.58	[illegible]	1 12 26.39	11[illegible]	12 51 25.5	[illegible]	62.72	14 4[illegible]	54 16.4	I. S
11	6 32.[illegible]	1.8[illegible]	1 58 55.87	[illegible]	17 36 41.6	[illegible]	64.17	14 4[illegible]	54 12.3	I. S.
12	7 16.91	[illegible]	2 47 53.95	[illegible]	+21 30 58.1	[illegible]	[illegible]	14 4[illegible]	54 19.3	I. S.
13	8 4.[illegible]	[illegible]	3 39 56.31	13[illegible]	24 48 23.8	[illegible]	68.15	14 [illegible]	54 [illegible].6	I. S
14	8 55.[illegible]	[illegible]	4 35 7.90	141.[illegible]	26 47 49.2	[illegible]	[illegible]	15 1.7	55 2.6	I. S
15	9 49.[illegible]	[illegible]	5 32 [illegible]	[illegible]	27 24 53.3	[illegible]	71.17	15 1[illegible].6	55 35.4	I. N.
16	10 44.45	[illegible]	6 31 46.73	[illegible]	26 30 32.1	[illegible]	71.40	15 [illegible]7	56 18.2	I. N.
17	11 39.00	[illegible]	7 30 25.17	[illegible]	+24 3 18.1	[illegible]	70.71	15 31.0	56 [illegible]3	I. N.
18	12 31.97	[illegible]	8 27 29.04	[illegible]	20 10 26.9	[illegible]	[illegible]44	15 41.0	57 27.1	II. N S.
19	13 22.50	[illegible]	9 22 23.7[illegible]	[illegible]	15 6 22.3	[illegible]	[illegible]	15 4[illegible]	57 5[illegible]5	II. S
20	14 11.65	[illegible]	10 15 19.29	[illegible]	9 9 43.8	[illegible]	[illegible]	15 5[illegible]	[illegible]	II. S
21	14 59.27	[illegible]	11 7 0.50	[illegible]	+ 2 40 50.5	[illegible]	[illegible]	16 2.5	58 4[illegible].0	II. S
22	15 46.73	[illegible]	11 58 32.93	[illegible]	− 3 59 2.7	[illegible]	[illegible]	16 [illegible]	59 1.2	II. S
23	16 35.31	[illegible]	12 51 12.0[illegible]	[illegible]	−10 28 55.5	[illegible]	[illegible]14	16 [illegible]	59 0.7	II. S.
24	17 26.[illegible]	[illegible]	13 46 12.35	[illegible]	−16 26 19.4	[illegible]	[illegible]	16 [illegible]	[illegible] 12.9	II. S
25	18 20.46	[illegible]	14 44 31.42	[illegible]	21 27 41.0	[illegible]	[illegible]14	16 9.4	59 11.3	II. S.
26	19 18.28	[illegible]	15 46 [illegible] 55	[illegible]	25 8 50.6	[illegible]	74.42	16 7.9	59 5.2	II. S.
27	20 18.90	[illegible]	16 51 10.36	[illegible]	27 8 44.6	[illegible]	[illegible]5.55	16 4.6	58 53.7	II. S.
28	21 20.55	[illegible]	17 56 44.1[illegible]	[illegible]	−27 15 20.1	[illegible]	[illegible]84	15 5[illegible]	5[illegible]	II N.
29	22 20.19	[illegible]	19 0 40.[illegible]	15[illegible]	−25 30 12.6	[illegible]	[illegible]	15 55.6	58 13.2	II. N.
30	23 16.42	[illegible]	20 1 0.58	145.[illegible]	−22 9 55.0	[illegible]	[illegible]	15 45.7	57 44.2	II. N.
Feb 1	0 8.[illegible]	[illegible]	[illegible]	[illegible]	−17 56 4[illegible].4	[illegible]	[illegible]	15 [illegible]	57 10.4	II. N.
2	0 55.93	[illegible]	21 48 40.49	[illegible]	12 15 5[illegible]	[illegible]	[illegible]40	15 [illegible]	[illegible]	I. S
3	1 40.25	[illegible]	22 37 3.31	11[illegible]	− 6 [illegible]	[illegible]	[illegible]	15 [illegible]	55 5[illegible]	I. S
4	2 22.31	[illegible]	23 23 10.35	113.41	0 35 1[illegible]	[illegible]	[illegible]37	15 7.[illegible]	55 22.0	I. S
5	3 3.25	[illegible]	0 8 9.[illegible]	[illegible]	+ 5 12 [illegible]	[illegible]	62.0[illegible]	14 [illegible]	54 [illegible]	I. S
6	3 44.16	[illegible]	0 53 8.13	113.[illegible]	10 42 52.3	[illegible]	62.47	14 52.[illegible]	54 [illegible]	I. S
7	4 26.[illegible]	[illegible]	1 39 6.[illegible]	[illegible]	+15 44 1[illegible]	[illegible]	[illegible].57	14 4[illegible]	54 15.5	I. S
8	5 9.[illegible]	[illegible]	2 [illegible]	[illegible]	20 6 25	[illegible]	[illegible]	14 4[illegible]	54 12.1	I. S
9	5 5[illegible] 24	[illegible]	3 1[illegible] 24 [illegible]	[illegible]	23 [illegible]	[illegible]	[illegible] 12	14 [illegible]	54 1[illegible]	I. S
10	6 45.[illegible]	[illegible]	4 1[illegible]	[illegible]	[illegible] 7 [illegible]	[illegible]	[illegible]	14 [illegible]	54 [illegible]	I. S
11	7 37.4[illegible]	[illegible]	5 6 4[illegible]	[illegible]	27 [illegible]	[illegible]	7[illegible]	15 [illegible]4	55 8.[illegible]	I. S
12	8 31.[illegible]	[illegible]	6 4 4[illegible]	[illegible]	+27 [illegible]	[illegible]	71.24	[illegible]	[illegible] 4[illegible].4	I. N.
13	9 25.[illegible]	[illegible]	7 3 14.[illegible]	[illegible]	25 23 5[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I. N.
14	10 [illegible]	[illegible]	8 [illegible]	14[illegible]	22 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I. N.
15	11 11.[illegible]	[illegible]	8 5[illegible]	[illegible]	1[illegible] 34 1.[illegible]	[illegible]	[illegible]15	[illegible]	5[illegible] 7.[illegible]	I. N.
16	12 2.3[illegible]	[illegible]	9 52 [illegible]	[illegible]	+11 5[illegible]	[illegible]	66.[illegible]	[illegible]	[illegible]	I. N. S.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Feb. 16	12 2.37	2.077	9 52 8.04	134.79	+11 52 55.6	− 918.8	68.10	16 3.6	58 49.8	I. N. S.
17	12 51.69	2.040	10 45 32.17	132.59	+ 5 26 7.8	−1005.6	67.53	16 12.5	59 22.7	II. S.
18	13 40.62	2.046	11 38 32.65	132.93	− 1 23 37.1	−1032.9	67.65	16 18.4	59 44.1	II. S.
19	14 30.27	2.100	12 32 15.98	136.17	− 8 11 48.2	− 997.3	68.56	16 20.7	59 52.9	II. S.
20	15 21.76	2.198	13 27 50.61	142.11	−14 32 51.3	− 897.0	70.16	16 19.9	59 49.9	II. S.
21	16 16.02	2.326	14 26 11.58	149.78	−20 0 51.8	− 732.5	72.16	16 16.4	59 36.9	II. S.
22	17 13.38	2.450	15 27 39.27	157.26	−24 11 0.7	− 509.5	74.05	16 10.9	59 16.6	II. S.
23	18 13.24	2.526	16 31 37.33	161.86	−26 42 39.3	− 243.7	75.18	16 4.0	58 51.4	II. S.
24	19 13.97	2.518	17 36 27.52	161.37	−27 23 49.8	+ 37.6	75.04	15 56.4	58 23.5	II. S.
25	20 13.39	2.420	18 39 59.26	155.47	−26 14 56.3	301.4	73.54	15 48.4	57 54.1	II. N.
26	21 9.67	2.263	19 40 21.64	146.00	−23 28 27.2	+ 522.3	71.11	15 40.2	57 24.0	II. N.
27	22 1.89	2.089	20 36 40.06	135.56	−19 24 28.0	688.2	68.35	15 32.0	56 53.7	II. N.
28	22 50.11	1.934	21 28 57.64	126.21	−14 25 14.7	799.1	65.81	15 23.7	56 23.3	II. N.
Mar. 1	23 35.01	1.814	22 17 55.22	119.02	− 8 51 39.0	861.3	63.82	15 15.5	55 53.4	II. N.
3	0 17.54	1.738	23 4 31.13	114.43	− 3 1 45.6	881.8	62.52	15 7.7	55 24.6	I. S.
4	0 58.78	1.705	23 49 48.29	112.44	+ 2 49 7.4	+ 867.1	61.98	15 0.5	54 58.2	I. S.
5	1 39.72	1.713	0 34 48.12	112.94	8 27 49.4	821.5	62.17	14 54.3	54 35.4	I. S.
6	2 21.32	1.759	1 20 27.72	115.71	13 42 30.4	747.2	63.01	14 49.6	54 18.0	I. S.
7	3 4.42	1.837	2 7 37.41	120.38	18 21 52.3	644.9	64.38	14 46.8	54 7.9	I. S.
8	3 49.68	1.937	2 56 56.62	126.39	22 14 33.5	513.6	66.08	14 46.4	54 6.4	I. S.
9	4 37.45	2.044	3 48 47.38	132.82	+25 8 55.5	+ 353.3	67.87	14 48.7	54 14.8	I. S.
10	5 27.68	2.139	4 43 6.34	138.52	26 53 30.6	+ 165.4	69.39	14 53.9	54 33.9	I. S.
11	6 19.83	2.200	5 39 20.45	142.24	27 18 20.3	− 44.1	70.36	15 2.1	55 4.1	I. S.
12	7 12.94	2.218	6 36 32.28	143.27	26 16 51.2	− 264.0	70.59	15 13.1	55 44.4	I. N.
13	8 5.94	2.193	7 33 37.46	141.79	23 47 37.1	− 480.3	70.16	15 26.5	56 33.5	I. N.
14	8 58.01	2.144	8 29 46.70	138.84	+19 55 3.3	− 678.2	69.33	15 41.4	57 28.4	I. N.
15	9 48.84	2.094	9 24 41.35	135.83	14 49 10.2	− 844.9	68.47	15 56.8	58 25.0	I. N.
16	10 38.68	2.065	10 18 36.50	134.08	8 44 53.0	− 968.5	67.96	16 11.3	59 18.2	I. N.
17	11 28.25	2.073	11 12 15.33	134.60	+ 2 1 34.1	−1038.2	68.05	16 23.3	60 2.4	I. N. S.
18	12 18.57	2.128	12 6 39.15	137.89	− 4 57 9.6	−1044.0	68.90	16 31.6	60 32.7	II. S.
19	13 10.76	2.229	13 2 55.95	143.94	−11 43 50.6	− 976.9	70.47	16 35.2	60 46.0	II. S.
20	14 5.81	2.362	14 2 4.41	151.96	−17 48 21.2	− 832.9	72.53	16 33.9	60 41.3	II. S.
21	15 4.15	2.496	15 4 30.92	160.03	−22 40 25.1	− 616.3	74.57	16 28.3	60 20.5	II. S.
22	16 5.24	2.583	16 9 43.17	165.27	−25 54 3.8	− 345.2	75.91	16 19.3	59 47.4	II. S.
23	17 7.41	2.580	17 15 59.78	165.08	−27 13 29.2	− 51.6	75.91	16 8.1	59 6.6	II. S.
24	18 8.29	2.478	18 20 59.16	158.97	−26 37 26.5	+ 226.2	74.45	15 56.2	58 22.5	II. N.
25	19 5.83	2.310	19 22 37.74	148.81	−24 18 34.6	459.1	71.93	15 44.2	57 38.6	II. N.
26	19 59.00	2.122	20 19 53.42	137.52	−20 37 49.1	635.1	68.99	15 32.9	56 57.3	II. N.
27	20 47.84	1.953	21 12 48.10	127.36	−15 57 52.2	756.0	66.25	15 22.7	56 19.8	II. N.
28	21 33.05	1.823	22 2 5.10	119.50	−10 39 20.5	829.4	64.04	15 13.7	55 46.5	II. N.
29	22 15.68	1.737	22 48 46.01	114.37	− 4 59 38.2	+ 863.0	62.54	15 5.8	55 17.5	II. N.
30	22 56.80	1.697	23 33 56.42	111.94	+ 0 40 33.8	862.6	61.80	14 59.0	54 52.7	II. N.
31	23 37.46	1.698	0 18 39.25	112.05	6 26 22.4	831.4	61.80	14 53.4	54 31.9	II. S.
Apr. 2	0 18.61	1.737	1 3 52.11	114.39	11 47 48.2	770.8	62.46	14 48.9	54 15.7	I. S.
3	1 1.11	1.806	1 50 25.13	118.63	+16 30 4.6	+ 680.6	63.67	14 45.9	54 4.4	I. S.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semi-diam. passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Apr 3	1 1.11	1.[illegible]	1 50 25.13	[illegible]	+16 39 4.6	+[illegible]	63.67	14 45.9	54 4.4	I. S.
4	1 45.59	1.[illegible]	2 38 37.34	[illegible]	20 48 14.7	[illegible]	65.25	14 44.4	53 59.0	I. S.
5	2 32.40	[illegible]	3 29 50.73	[illegible]	24 3 14.5	[illegible]	66.13	14 44.8	54 0.4	I. S.
6	3 21.55	[illegible]	4 23 3.40	[illegible]	26 12 31.5	[illegible]	68.42	14 47.4	54 10.0	I. S.
7	4 12.40	[illegible]	5 18 5.65	[illegible]	27 6 20.1	+[illegible]	69.42	14 52.5	54 28.6	I. S.
8	5 4.30	[illegible]	6 14 4.83	[illegible]	+26 38 18.2	[illegible]	69.76	15 0.2	54 57.1	I. N.
9	5 56.23	[illegible]	7 10 0.64	[illegible]	24 46 40.2	[illegible]	69.45	15 10.7	55 35.5	I. N.
10	6 47.23	[illegible]	8 5 5.37	[illegible]	21 34 32.7	[illegible]	68.72	15 23.6	56 23.1	I. N.
11	7 37.05	[illegible]	8 58 58.96	[illegible]	17 9 16.8	[illegible]	67.92	15 38.7	57 18.3	I. N.
12	8 25.88	[illegible]	9 51 53.56	[illegible]	11 41 40.2	[illegible]	67.38	15 54.9	58 17.9	I. N.
13	9 14.39	[illegible]	10 44 28.79	[illegible]	+5 25 47.9	[illegible]	67.41	16 11.1	59 17.3	I. N.
14	10 3.60	[illegible]	11 37 46.16	[illegible]	−1 20 17.1	−[illegible]	68.20	16 25.7	60 11.0	I. N.
15	10 54.73	[illegible]	12 32 58.49	[illegible]	−8 13 29.9	[illegible]	69.79	16 36.9	60 52.4	I. N.
16	11 48.96	[illegible]	13 31 18.12	[illegible]	−14 45 3.9	[illegible]	72.07	16 43.4	61 16.2	I. S.
17	12 47.14	[illegible]	14 33 34.96	[illegible]	20 21 56.9	[illegible]	74.60	16 44.2	61 19.0	II. S
18	13 49.16	[illegible]	15 39 43.06	[illegible]	−24 29 26.4	−[illegible]	76.64	16 39.2	61 0.7	II. S.
19	14 53.53	[illegible]	16 48 11.98	[illegible]	−26 42 25.6	[illegible]	77.37	16 29.5	60 24.9	II. S
20	15 57.31	[illegible]	17 56 19.11	[illegible]	−26 50 42.1	+[illegible]	76.14	16 16.3	59 36.5	II. S
21	16 58.50	[illegible]	19 1 17.26	[illegible]	−25 3 32.0	[illegible]	73.83	16 1.4	58 41.8	II. N
22	17 54.43	[illegible]	20 1 25.32	[illegible]	21 43 50.7	[illegible]	70.63	15 46.3	57 46.5	II. N.
23	18 45.57	[illegible]	20 56 26.89	[illegible]	−17 17 3.6	+[illegible]	67.46	15 32.2	56 54.4	II. N.
24	19 31.91	[illegible]	21 47 4.41	[illegible]	−12 7 54.5	[illegible]	64.83	15 19.5	56 8.0	II. N.
25	20 15.23	[illegible]	22 34 26.96	[illegible]	−6 35 1.8	[illegible]	62.95	15 8.9	55 29.9	II. N.
26	20 56.53	[illegible]	23 19 47.53	[illegible]	0 53 17.2	[illegible]	61.88	15 0.2	54 58.9	II. N.
27	21 36.98	[illegible]	0 4 18.05	[illegible]	+4 45 4.3	[illegible]	61.61	14 53.4	54 34.2	II. N.
28	22 17.67	[illegible]	0 49 8.23	[illegible]	+10 8 55.5	+[illegible]	62.16	14 48.5	54 14.1	II. N.
29	22 59.50	[illegible]	1 34 55.82	[illegible]	15 7 11.9	[illegible]	63.11	14 45.2	54 1.9	II. N.
30	23 43.23	[illegible]	2 22 43.22	[illegible]	19 28 12.7	[illegible]	64.60	14 43.5	53 55.8	II. S
May 2	0 29.50	[illegible]	3 12 51.89	[illegible]	22 59 59.8	[illegible]	66.26	14 43.4	53 55.4	I. S
3	1 17.78	[illegible]	4 5 24.66	[illegible]	25 29 17.5	[illegible]	67.79	14 44.9	54 0.8	I. S.
4	2 8.19	[illegible]	4 59 54.41	[illegible]	+26 46 24.3	+[illegible]	68.86	14 48.1	54 12.6	I. S
5	2 59.65	[illegible]	5 55 27.[illegible]	[illegible]	26 43 40.[illegible]	[illegible]	69.25	14 53.2	54 31.4	I. S.
6	3 51.06	[illegible]	6 51 48.56	[illegible]	25 19 26.1	[illegible]	68.95	15 0.4	54 57.9	I. N.
7	4 41.40	[illegible]	7 45 27.28	[illegible]	22 56.22.1	[illegible]	68.16	15 9.8	55 32.4	I. N.
8	5 30.48	[illegible]	8 38 30.56	[illegible]	18 42 0.[illegible]	[illegible]	67.21	15 21.4	56 15.0	I. N.
9	6 18.11	[illegible]	9 30 13.20	[illegible]	+13 48 25.3	[illegible]	66.46	15 35.0	57 4.8	I. N.
10	7 4.[illegible]	[illegible]	10 21 9.75	[illegible]	8 1 31.4	[illegible]	66.22	15 50.0	58 0.1	I. N.
11	7 52.[illegible]	[illegible]	11 12 19.57	[illegible]	+1 41 12.8	[illegible]	66.72	16 5.7	58 57.6	I. N.
12	8 40.61	[illegible]	12 4 59.77	[illegible]	4 5[illegible] 2.6	[illegible]	68.07	16 21.7	59 52.6	I. N.
13	9 31.99	[illegible]	13 0 24.46	[illegible]	11 31 55.6	−[illegible]	70.29	16 33.4	60 39.4	I. N.
14	10 27.4[illegible]	[illegible]	13 59 58.22	[illegible]	17 31 54.1	[illegible]	73.11	16 42.3	61 11.9	I. N.
15	11 27.[illegible]	[illegible]	15 4 18.21	[illegible]	22 29 5.7	[illegible]	75.93	16 45.8	61 25.0	I. S
16	12 32.16	[illegible]	16 12 47.60	[illegible]	−25 43 14.7	[illegible]	[illegible]	16 43.4	61 16.2	II. S
17	13 18.[illegible]	[illegible]	17 23 7.[illegible]	[illegible]	26 52 30.4	[illegible]	[illegible]	16 35.3	60 46.5	II. S
18	14 41.[illegible]	[illegible]	18 32 55.12	[illegible]	25 55 31.2	+[illegible]	76.22	16 22.8	60 0.5	II. S

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	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
May 18	14 42.94	2.619	18 31 55.12	167.42	−25 53 31.2	+296.4	76.22	16 22.8	60 0.5	II. S.
19	15 43.28	2.401	19 36 21.91	154.29	−23 3 56.3	538.8	73.11	16 7.5	59 4.1	II. N.
20	16 38.06	2.167	20 35 14.46	140.23	−18 52 40.3	705.0	69.63	15 51.2	58 4.2	II. N.
21	17 27.57	1.966	21 28 49.38	128.16	−13 48 51.4	804.0	66.49	15 35.3	57 5.9	II. N.
22	18 12.88	1.819	22 18 12.09	119.30	− 8 16 16.5	851.7	64.09	15 20.9	56 13.1	II. N.
23	18 55.34	1.729	23 4 43.41	113.87	− 2 32 39.3	+861.2	62.56	15 8.7	55 28.2	II. N.
24	19 36.28	1.691	23 49 43.06	111.62	+ 3 8 42.9	841.8	61.88	14 58.9	54 52.3	II. N.
25	20 16.91	1.702	0 34 23.90	112.25	8 36 58.8	795.8	62.00	14 51.7	54 25.8	II. N.
26	20 58.29	1.753	1 19 50.17	115.33	13 42 2.8	725.0	62.81	14 46.9	54 8.2	II. N.
27	21 41.32	1.837	2 6 55.45	120.38	18 13 20.6	626.7	64.14	14 44.3	53 58.7	II. N.
28	22 26.62	1.940	2 56 17.67	126.58	+21 59 17.8	+497.9	65.77	14 43.7	53 56.6	II. N.
29	23 14.44	2.043	3 48 11.41	132.78	24 47 35.1	338.5	67.38	14 44.9	54 0.9	II. S.
31	0 4.50	2.123	4 42 19.84	137.57	26 26 30.3	+152.3	68.62	14 47.7	54 11.0	I. S.
June 1	0 55.98	2.159	5 37 53.47	139.73	26 47 8.4	− 50.7	69.19	14 51.9	54 26.4	I. S.
2	1 47.70	2.143	6 33 41.63	138.79	25 45 37.3	−255.9	68.99	14 57.5	54 47.1	I. S.
3	2 38.52	2.087	7 28 35.79	135.40	+23 24 10.5	−448.1	68.18	15 4.5	55 12.9	I. N.
4	3 27.71	2.012	8 21 51.99	130.88	19 50 19.4	−616.5	67.06	15 13.0	55 44.0	I. N.
5	4 15.14	1.943	9 13 21.79	126.78	15 14 58.4	−754.9	66.02	15 22.9	56 20.5	I. N.
6	5 1.21	1.903	10 3 30.52	124.33	9 50 39.3	−861.0	65.40	15 34.3	57 2.2	I. N.
7	5 46.79	1.904	10 53 9.48	124.42	+ 3 50 43.9	−932.5	65.45	15 46.8	57 48.2	I. N.
8	6 33.04	1.959	11 43 28.17	127.71	− 2 30 6.7	−964.5	66.33	16 0.0	58 36.5	I. N.
9	7 21.29	2.072	12 35 47.93	134.54	− 8 54 29.7	−948.3	68.08	16 12.9	59 24.2	I. N.
10	8 12.97	2.242	13 31 33.42	144.78	−15 0 26.5	−869.8	70.69	16 24.6	60 7.1	I. N.
11	9 9.23	2.450	14 31 55.14	157.23	−20 20 4.8	−714.5	73.73	16 33.6	60 40.1	I. N.
12	10 10.46	2.645	15 37 15.47	169.01	−24 20 52.6	−475.9	76.50	16 38.6	60 58.3	I. N. S.
13	11 15.53	2.757	16 46 26.71	175.71	−26 31 57.8	−171.4	78.03	16 38.5	60 58.1	I. S.
14	12 21.63	2.727	17 56 40.58	173.92	−26 35 18.1	+153.0	77.62	16 33.1	60 38.4	II. S.
15	13 25.36	2.566	19 4 31.20	164.22	−24 34 28.2	440.9	75.35	16 23.0	60 1.3	II. N. S.
16	14 24.27	2.338	20 7 31.90	150.55	−20 52 25.4	655.8	72.07	16 9.5	59 11.5	II. N.
17	15 17.63	2.113	21 4 59.13	137.01	−16 0 23.9	791.9	68.69	15 54.1	58 14.9	II. N.
18	16 6.05	1.931	21 57 28.99	126.01	−10 27 45.7	+861.7	65.84	15 38.3	57 17.1	II. N.
19	16 50.76	1.804	22 46 14.90	118.41	− 4 37 37.0	882.1	63.81	15 23.6	56 22.9	II. N.
20	17 33.10	1.734	23 32 39.36	114.19	+ 1 13 5.3	866.3	62.65	15 10.7	55 35.6	II. N.
21	18 14.41	1.716	0 18 1.14	113.11	6 51 46.5	822.9	62.35	15 0.3	54 57.4	II. N.
22	18 55.86	1.745	1 3 31.34	114.82	12 8 6.8	754.8	62.81	14 52.7	54 29.4	II. N.
23	19 38.47	1.812	1 50 11.47	118.85	+16 52 20.1	+661.9	63.89	14 47.8	54 11.5	II. N.
24	20 23.04	1.906	2 38 49.95	124.55	20 54 3.5	541.9	65.38	14 45.7	54 3.7	II. N.
25	21 10.07	2.012	3 29 55.48	130.90	24 1 53.3	392.2	67.02	14 46.0	54 4.9	II. N.
26	21 59.53	2.106	4 23 28.09	136.56	26 4 4.3	214.2	68.44	14 48.5	54 13.9	II. N.
27	22 50.87	2.164	5 18 53.22	140.06	26 50 17.7	+ 14.2	69.29	14 52.7	54 29.5	II. S.
28	23 43.00	2.172	6 15 6.53	140.50	+26 14 12.6	−194.7	69.38	14 58.4	54 50.3	II. S.
30	0 34.69	2.129	7 10 53.06	137.95	24 15 28.9	−396.3	68.72	15 5.1	55 15.1	I. S.
July 1	1 24.94	2.055	8 5 12.74	133.49	21 0 6.3	−576.0	67.59	15 12.7	55 42.9	I. N.
2	2 13.29	1.975	8 57 38.26	128.70	16 38 57.3	−724.0	66.37	15 20.9	56 13.2	I. N.
3	2 59.90	1.913	9 48 18.63	124.96	+11 25 40.2	−836.2	65.43	15 29.7	56 45.3	I. N.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semi-diam. passing Meridian.	Semi-diameter.	Horizontal Parallax.	Bright Limb.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
July 3	2 59.90	[illegible]	9 48 18.63	[illegible]	+11 25 40.2	[illegible]	65.43	15 2.7	56 45.3	I. N
4	3 45.40	[illegible]	10 37 52.72	[illegible]	+ 5 35 0.5	[illegible]	65.04	15 17.9	57 19.1	I N.
5	4 30.79	[illegible]	11 27 20.38	[illegible]	0 17 4	[illegible]	65.42	15 47.4	57 54.0	I. N.
6	5 17.30	[illegible]	12 17 55.08	[illegible]	6 55 56.2	[illegible]	66.64	15 59.0	58 29.4	I. N.
7	6 6.25	[illegible]	13 10 57.07	[illegible]	-13 0 57.2	[illegible]	68.72	16 7.3	59 3.6	I. N.
8	6 58.93	[illegible]	14 7 42.96	[illegible]	-18 50 7.9	[illegible]	72.41	16 15.7	59 34.4	I. N.
9	7 56.15	[illegible]	15 9 2.00	[illegible]	22 56 37.7	[illegible]	74.26	16 22.4	[illegible]	I. N.
10	8 57.76	[illegible]	16 14 45.51	[illegible]	25 51 45.9	[illegible]	76.50	16 26.3	60 13.1	I. N.
11	10 2.11	[illegible]	17 23 13.25	[illegible]	-26 52 3.4	+ [illegible]	77.27	16 26.7	60 14.6	I. S.
12	11 6.29	[illegible]	18 31 31.18	[illegible]	-25 48 41.9	[illegible]	76.19	16 23.0	60 1.3	I. S.
13	12 7.40	[illegible]	19 36 44.73	[illegible]	-22 52 24.4	+[illegible]	73.67	16 15.5	59 33.7	I. II. S.
14	13 3.77	[illegible]	20 37 12.62	[illegible]	18 28 24.9	[illegible]	70.54	16 4.7	58 54.0	II N.
15	13 55.19	[illegible]	21 32 42.38	[illegible]	-13 6 50.8	[illegible]	67.96	15 51.7	58 6.9	II. N.
16	14 42.42	[illegible]	22 24 0.79	[illegible]	- 7 15 2.1	[illegible]	65.20	15 37.8	57 15.2	II. N.
17	15 26.68	[illegible]	23 12 19.96	[illegible]	- 1 14 40.6	[illegible]	63.65	15 24.2	56 25.2	II. N.
18	16 9.83	[illegible]	23 58 56.53	[illegible]	+ 4 37 54.4	+[illegible]	62.95	15 11.9	55 40.1	II. N.
19	16 51.28	[illegible]	0 45 3.01	[illegible]	10 10 12.1	[illegible]	63.03	15 1.7	55 2.5	II N.
20	17 33.90	[illegible]	1 31 44.08	[illegible]	15 11 42.5	[illegible]	63.80	14 54.1	54 34.7	II N.
21	18 18.00	[illegible]	2 19 51.79	[illegible]	19 32 28.6	[illegible]	65.06	14 49.4	54 17.4	II N.
22	19 4.81	[illegible]	3 10 10.72	[illegible]	23 2 8.2	[illegible]	66.60	14 47.7	54 11.0	II. N.
23	19 52.80	[illegible]	4 2 30.19	[illegible]	+25 29 48.5	[illegible]	68.10	14 48.9	54 15.1	II N.
24	20 43.40	[illegible]	4 57 [illegible]	[illegible]	26 45 2.7	+ [illegible]	69.20	14 52.5	54 28.9	II. N.
25	21 35.51	[illegible]	5 53 41.13	[illegible]	26 [illegible]	[illegible]	[illegible]	14 58.3	54 50.1	II. S
26	22 27.73	[illegible]	6 50 1.41	[illegible]	25 10 47.0	−[illegible]	69.32	15 5.8	55 17.6	II. S
27	23 19.05	[illegible]	7 45 25.96	[illegible]	22 20 41.0	[illegible]	68.41	15 14.4	55 49.2	II. S
29	0 8.75	[illegible]	8 39 12.28	[illegible]	+18 18 [illegible]	[illegible]	67.23	15 23.5	56 22.7	I. N.
30	0 56.69	[illegible]	9 31 13.41	[illegible]	[illegible]	[illegible]	66.15	15 32.6	[illegible]	I. N
31	1 41.87	[illegible]	10 21 52.12	[illegible]	7 50 22.3	[illegible]	65.50	15 41.2	[illegible]	I. N
Aug. 1	[illegible]	[illegible]	11 11 [illegible]	[illegible]	+ 1 17 23.4	[illegible]	[illegible]	15 43.1	[illegible]	I. N
2	[illegible]	[illegible]	12 2 28.52	[illegible]	5 4 24.1	[illegible]	[illegible]	15 56.1	58 22.3	I N.
3	4 [illegible]	[illegible]	12 54 41.52	[illegible]	11 15 58.4	[illegible]	[illegible]	16 2.1	58 44.5	I. N.
4	[illegible]	[illegible]	13 49 45.71	[illegible]	[illegible]	[illegible]	[illegible]	16 7.1	[illegible]	I. N
5	[illegible]	[illegible]	14 48 35.21	[illegible]	21 40 [illegible]	[illegible]	72 [illegible]	16 11.0	[illegible]	I. N.
6	6 4[illegible]	[illegible]	15 51 22.84	[illegible]	25 3 40.6	[illegible]	74 [illegible]	16 13.5	[illegible]	I N
7	7 [illegible]	[illegible]	16 57 12.92	[illegible]	-26 44 35.5	[illegible]	[illegible]	16 14.2	[illegible]	I. N.
8	[illegible]	[illegible]	18 3 57.42	[illegible]	[illegible]	[illegible]	[illegible]	16 12.7	[illegible]	I. S
9	[illegible]	[illegible]	[illegible] 9 2.11	[illegible]	-24 21 11.3	[illegible]	74 1	16 8.9	[illegible]	I S
10	[illegible]	[illegible]	[illegible] 44	[illegible]	[illegible]	[illegible]	71 [illegible]	16 2.5	[illegible]	I S
11	[illegible]	[illegible]	21 7 33.45	[illegible]	15 41 [illegible]	[illegible]	68 [illegible]	15 [illegible]	[illegible]	I. S
12	[illegible]	[illegible]	22 0 32.[illegible]	[illegible]	10 1 44.3	[illegible]	67.14	15 43.5	[illegible]	II. N
13	13 [illegible]	[illegible]	[illegible]	[illegible]	4 [illegible]	[illegible]	64.41	[illegible]	56 54.5	II. N
14	14 [illegible]	[illegible]	[illegible]	[illegible]	+ 2 0 [illegible]	[illegible]	63.43	[illegible]	[illegible]	II. N
15	[illegible]	[illegible]	[illegible]	[illegible]	7 47 11.1	[illegible]	[illegible]	[illegible]	[illegible]	II. N
16	15 [illegible]	[illegible]	[illegible]	[illegible]	13 [illegible]	[illegible]	[illegible]	15 1.3	[illegible]	II. N
17	16 11.[illegible]	[illegible]	[illegible]	[illegible]	+17 [illegible]	[illegible]	[illegible]	14 54.2	[illegible]	II N

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Aug. 17	16 11.84	1.861	1 59 50.57	121.81	+17 48 48.7	+647.8	64.73	14 54.2	54 34.8	II. N.
18	16 57.44	1.942	2 49 30.82	126.71	21 41 53.8	513.3	66.10	14 49.9	54 19.2	II. N.
19	17 45.13	2.031	3 41 16.36	132.08	24 36 4.5	353.4	67.54	14 48.6	54 14.4	II. N.
20	18 34.86	2.109	4 35 4.95	136.75	26 21 30.6	+170.2	68.75	14 50.3	54 20.7	II. N.
21	19 26.13	2.157	5 30 26.08	139.62	26 49 57.4	− 30.2	69.45	14 54.9	54 37.7	II. N.
22	20 18.06	2.163	6 26 26.65	140.00	+25 56 26.5	−237.5	69.49	15 2.2	55 4.5	II. S.
23	21 9.64	2.130	7 22 6.85	138.02	23 40 46.5	−438.6	68.91	15 11.6	55 39.0	II. S.
24	22 0.11	2.074	8 16 40.03	134.61	20 8 2.9	−620.8	67.93	15 22.4	56 18.7	II. S.
25	22 49.15	2.024	9 9 46.52	131.01	15 28 9.0	−772.9	66.95	15 33.9	57 0.7	II. S.
26	23 36.91	1.971	10 1 36.94	128.44	9 54 42.5	−887.2	66.24	15 45.0	57 41.6	II. N.
28	0 24.02	1.961	10 52 47.62	127.82	+ 3 44 16.4	−957.0	66.07	15 55.0	58 18.3	I. N.
29	1 11.37	1.993	11 44 12.80	129.74	− 2 44 14.1	−976.6	66.60	16 3.2	58 48.3	I. N.
30	2 0.03	2.070	12 36 56.90	134.40	− 9 9 38.5	−940.6	67.88	16 9.0	59 9.9	I. N.
31	2 51.08	2.190	13 32 4.92	141.62	−15 8 39.0	843.9	69.81	16 12.5	59 22.6	I. N.
Sept. 1	3 45.37	2.337	14 30 28.15	150.42	20 16 16.3	−683.5	72.08	16 13.6	59 26.8	I. N.
2	4 43.18	2.476	15 32 22.43	158.80	−24 7 21.4	−462.5	74.19	16 12.8	59 23.7	I. N.
3	5 43.78	2.562	16 37 5.20	163.99	−26 20 10.3	−195.9	75.46	16 10.3	59 14.4	I. N.
4	6 45.42	2.558	17 42 50.34	163.75	−26 41 41.4	+ 88.2	75.39	16 6.4	59 0.3	I. N.
5	7 45.82	2.462	18 47 20.67	157.95	−25 11 59.8	354.5	73.94	16 1.4	58 41.8	I. S.
6	8 43.09	2.305	19 48 43.06	148.56	−22 4 10.5	575.1	71.56	15 55.3	58 19.4	I. S.
7	9 36.37	2.135	20 46 4.86	138.32	−17 39 33.4	+737.6	68.89	15 48.3	57 53.6	I. S.
8	10 25.76	1.986	21 39 32.91	129.33	−12 21 57.8	840.9	66.48	15 40.3	57 24.2	I. S.
9	11 12.00	1.875	22 29 51.69	122.66	− 6 33 52.8	891.2	64.65	15 31.6	56 52.5	I. S.
10	11 56.11	1.808	23 18 1.83	118.63	− 0 34 57.1	896.4	63.53	15 22.5	56 19.0	I. II. N.
11	12 39.13	1.784	0 5 6.84	117.20	+ 5 18 3.2	862.7	63.15	15 13.4	55 45.6	II. N.
12	13 22.06	1.800	0 52 6.33	118.12	+10 50 43.7	+795.4	63.44	15 4.9	55 14.4	II. N.
13	14 5.76	1.847	1 39 52.21	121.00	15 50 19.0	697.7	64.29	14 57.6	54 47.5	II. N.
14	14 50.91	1.918	2 29 4.92	125.25	20 5 9.7	571.9	65.52	14 51.9	54 26.7	II. N.
15	15 37.90	1.998	3 20 8.42	130.07	23 24 23.5	420.0	66.87	14 48.5	54 14.1	II. N.
16	16 26.76	2.071	4 13 4.74	134.45	25 38 8.7	245.4	68.09	14 47.7	54 11.1	II. N.
17	17 17.12	2.120	5 7 31.10	137.42	+26 38 19.1	+ 53.4	68.89	14 49.8	54 18.8	II. N.
18	18 8.25	2.134	6 2 43.89	138.27	26 19 42.9	−147.1	69.12	14 54.9	54 37.6	II. N. S.
19	18 59.29	2.114	6 57 51.10	137.02	24 41 1.0	345.3	68.77	15 2.9	55 7.1	II. S.
20	19 49.51	2.069	7 52 9.30	134.35	21 45 8.8	− 531.3	68.02	15 13.6	55 46.2	II. S.
21	20 38.56	2.019	8 45 17.08	131.35	17 38 55.0	−695.7	67.16	15 26.2	56 32.7	II. S.
22	21 26.54	1.983	9 37 20.25	129.13	+12 32 27.5	−831.1	66.50	15 40.1	57 23.5	II. S.
23	22 13.06	1.975	10 28 49 61	128.66	6 38 57.0	−929.6	66.32	15 54.0	58 14.5	II. S.
24	23 1.65	2.007	11 20 35.18	130.57	+ 0 14 51.7	−982.4	66.78	16 6.6	59 1.1	II. S.
25	23 50.64	2.084	12 13 39.37	135.25	− 6 19 35.3	−979.6	67.90	16 16.9	59 38.8	
27	0 42.03	2.205	13 9 7.96	142.54	12 40 6.2	−911.2	69.88	16 23.8	60 4.0	I. N.
28	1 36.74	2.356	14 7 56.04	151.63	18 18 51.2	770.2	72.21	16 26.6	60 14.6	I. N.
29	2 35.12	2.504	15 10 25.05	160.53	22 46 39.3	− 557.7	74.44	16 25.6	60 10.8	I. N.
30	3 36.53	2.601	16 15 56.44	166.32	25 37 31.3	− 289.6	75.90	16 21.1	59 54.3	I. N.
Oct. 1	4 39.18	2.602	17 22 42.12	166.43	− 26 35 7.0	+ 2.3	75.98	16 14.1	59 28.5	I. N.
2	5 40.63	2.504	18 28 15.26	160.48	−25 37 50.1	+278.6	74.58	16 5.5	58 56.9	I. S.

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semid. passing Meridian.	Geocentric Semidiameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Oct 2	5 40.63	[illegible]	18 28 15.86	[illegible]	[illegible]	[illegible]	74.58	16 5.5	[illegible]	I. S
3	6 38.82	[illegible]	19 30 32.98	[illegible]	22 59 28.5	[illegible]	72.13	15 56.1	58 22.1	I. S
4	7 32.74	[illegible]	20 25 33.89	[illegible]	18 59 [illegible]	[illegible]	69.31	15 46.5	57 47.2	I. S
5	8 22.49	[illegible]	21 22 23.65	[illegible]	14 1 40.7	[illegible]	66.72	15 37.2	57 12.9	I. S
6	9 8.84	[illegible]	22 12 48.40	[illegible]	− 8 29 29.3	[illegible]	64.70	15 28.2	[illegible]	I. S.
7	9 52.83	[illegible]	23 0 51.60	[illegible]	2 40 35.6	[illegible]	63.40	15 19.8	56 8.9	I. S
8	10 35.96	[illegible]	23 47 39.42	[illegible]	+ 3 9 3.7	[illegible]	62.85	15 11.8	55 39.6	I S
9	11 18.08	[illegible]	0 34 13.75	[illegible]	8 45 20.1	[illegible]	[illegible]	15 4.5	55 12.7	I N
10	12 1.26	[illegible]	1 21 28.40	[illegible]	13 55 7.4	[illegible]	63.72	14 57.9	54 48.7	II N.
11	12 45.82	[illegible]	2 10 5.65	[illegible]	18 25 55.2	[illegible]	64.97	14 52.4	54 28.5	II. N
12	13 32.17	[illegible]	3 0 31.30	[illegible]	+22 5 46.7	[illegible]	66.20	14 48.4	54 13.5	II. N.
13	14 20.40	[illegible]	3 52 40.13	[illegible]	24 43 48.2	[illegible]	67.43	14 46.0	54 4.8	II N
14	15 10.13	[illegible]	4 46 37.77	[illegible]	26 11 7.3	[illegible]	68.29	14 45.8	54 4.1	II N
15	16 0.65	[illegible]	5 41 13.98	[illegible]	26 22 5.0	[illegible]	68.58	14 48.0	54 12.2	II. N.
16	16 51.09	[illegible]	6 35 45.00	[illegible]	25 15 8.7	[illegible]	68.31	14 53.1	54 30.9	II. S
17	17 40.68	[illegible]	7 29 25.58	[illegible]	+22 52 53.3	[illegible]	67.60	15 1.0	55 0.1	II. S
18	18 29.04	[illegible]	8 21 51.24	[illegible]	19 21 14.6	[illegible]	66.74	15 11.8	55 39.6	II. S
19	19 16.21	[illegible]	9 13 5.92	[illegible]	14 48 30.0	[illegible]	66.04	15 25.0	56 28.2	II S
20	20 2.68	[illegible]	10 3 38.52	[illegible]	9 24 47.0	[illegible]	65.75	15 40.1	57 23.5	II. S
21	20 49.28	[illegible]	10 54 18.70	[illegible]	+ 3 22 24.4	[illegible]	66.12	15 56.0	58 21.9	II. S
22	21 37.08	[illegible]	11 46 11.15	[illegible]	− 3 3 2.2	[illegible]	[illegible]	16 11.4	59 18.6	II S
23	22 27.30	[illegible]	12 40 28.[illegible]	[illegible]	9 31 [illegible]	[illegible]	[illegible]	16 24.8	60 7.7	II. S
24	23 21.10	[illegible]	13 38 22.20	[illegible]	15 15 18.5	[illegible]	71.70	16 34.5	60 41.4	II N
26	0 19.24	[illegible]	14 40 [illegible]	[illegible]	20 44 55.5	[illegible]	74.43	[illegible]	61 1.1	I N.
27	1 21.52	[illegible]	15 47 0.12	[illegible]	24 26 9.6	[illegible]	[illegible]	[illegible]	60 59.2	I N.
28	2 26.27	[illegible]	16 55 52.64	[illegible]	26 13 [illegible]	[illegible]	[illegible]	[illegible]	60 38.5	I N
29	3 30.69	[illegible]	18 4 25.03	[illegible]	−25 57 7.3	[illegible]	[illegible]	[illegible]	[illegible]	I N.
30	4 31.98	[illegible]	19 9 48.62	[illegible]	−23 [illegible]	[illegible]	[illegible]	16 11.3	[illegible]	I. S
31	5 28.[illegible]	[illegible]	20 10 25.92	[illegible]	20 [illegible] 19.4	[illegible]	70.75	[illegible]	58 23.1	I. S
Nov 1	6 [illegible]	[illegible]	21 6 5.43	[illegible]	−15 22 28.5	[illegible]	[illegible]	15 44.6	[illegible]	I S.
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I. S
3	[illegible]	[illegible]	22 46 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I S
4	8 34.[illegible]	[illegible]	23 38 42.23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I S
5	9 16.54	[illegible]	0 18 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I. S
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54 44.5	I. S
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I N S
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I N
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14 45.1	[illegible]	II N
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	II N.
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	II N
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	II N S
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	II S
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	II S
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	II S
16	[illegible]	[illegible]	[illegible]	[illegible]	+11 30 44.[illegible]	[illegible]	[illegible]	15 21.2	[illegible]	II S

AT TRANSIT OF MOON'S CENTRE OVER THE MERIDIAN OF WASHINGTON.

Date.	Mean Time of Transit.	Diff. for 1 Hour of Long.	Right Ascension of Centre.	Diff. for 1 Hour of Long.	Geocentric Declination of Centre.	Diff. for 1 Hour of Long.	Sid. Time of Semid. Passing Meridian.	Geocentric Semi-diameter.	Equatorial Horizontal Parallax.	Bright Limbs.
	h m	m	h m s	s	° ′ ″	″	s	′ ″	′ ″	
Nov. 16	17 55.11	1.872	9 42 9.95	122.48	+11 30 44.2	−793.6	64.80	15 21.2	56 14.0	II. S.
17	18 39.98	1.875	10 31 6.14	122.66	+ 5 55 18.3	−878.8	64.84	15 35.6	57 7.0	II. S.
18	19 25.49	1.927	11 20 40.95	125.77	− 0 7 56.5	−931.4	65.65	15 51.5	58 5.4	II. S.
19	20 12.91	2.034	12 12 10.41	132.26	− 6 24 9.6	−941.6	67.31	16 7.8	59 5.5	II. S.
20	21 3.60	2.199	13 6 56.85	142.15	−12 33 29.2	−894.0	69.80	16 23.3	60 2.1	II. S.
21	21 58.81	2.407	14 6 15.14	154.66	−18 9 19.4	−771.1	72.87	16 35.9	60 48.4	II. S.
22	22 59.18	2.619	15 10 43.33	167.41	−22 38 44.2	−561.1	75.90	16 44.0	61 18.3	II. N.
24	0 3.99	2.765	16 19 30.43	176.21	−25 27 41.0	−273.0	77.95	16 46.4	61 27.1	I. N.
25	1 10.82	2.778	17 30 36.44	177.01	−26 12 0.7	+ 52.8	78.16	16 42.7	61 13.4	I. N.
26	2 16.18	2.648	18 40 5.59	169.17	−24 48 25.2	356.9	76.39	16 33.5	60 39.6	I. N. S.
27	3 17.22	2.431	19 45 14.82	156.11	−21 35 27.3	+594.6	73.33	16 20.2	59 51.0	I. S.
28	4 12.77	2.201	20 44 53.34	142.26	−17 3 24.7	752.6	69.94	16 4.8	58 54.3	I. S.
29	5 3.16	2.006	21 39 21.39	130.56	−11 42 48.9	840.0	66.95	15 48.8	57 55.7	I. S.
30	5 49.52	1.867	22 29 47.37	122.18	− 5 58 33.4	873.6	64.71	15 33.7	56 59.9	I. S.
Dec. 1	6 33.23	1.785	23 17 33.80	117.25	− 0 9 15.4	867.1	63.34	15 20.1	56 10.2	I. S.
2	7 15.62	1.756	0 4 0.71	115.49	+ 5 31 4.4	+829.7	62.82	15 8.7	55 28.3	I. S.
3	7 57.88	1.773	0 50 19.53	116.50	10 50 57.5	765.3	63.04	14 59.6	54 54.7	I. S.
4	8 41.00	1.826	1 37 30.39	119.73	15 39 47.7	674.4	63.86	14 52.6	54 29.3	I. S.
5	9 25.74	1.905	2 26 18.53	124.46	19 46 49.6	556.1	65.08	14 47.9	54 11.8	I. S.
6	10 12.50	1.992	3 17 8.45	129.69	23 0 56.0	409.9	66.41	14 45.0	54 1.2	I. S.
7	11 1.23	2.066	4 9 57.21	134.14	+25 11 23.5	+238.6	67.54	14 43.8	53 56.9	I. N.
8	11 51.39	2.107	5 4 11.18	136.61	26 9 30.8	+ 49.9	68.17	14 44.2	53 58.2	I. II. N.
9	12 41.99	2.103	5 58 52.54	136.38	25 50 37.3	−144.2	68.12	14 46.0	54 4.9	II. N.
10	13 31.98	2.057	6 52 56.64	133.60	24 15 19.0	−329.9	67.44	14 49.3	54 17.1	II. S.
11	14 20.52	1.985	7 45 33.17	129.28	21 29 15.6	−496.4	66.36	14 54.2	54 34.9	II. S.
12	15 7.23	1.909	8 36 20.24	124.71	+17 41 40.2	−636.9	65.22	15 0.7	54 59.0	II. S.
13	15 52.28	1.850	9 25 27.30	121.14	13 3 27.7	−749.4	64.31	15 9.1	55 29.8	II. S.
14	16 36.27	1.822	10 13 30.15	119.49	7 46 0.3	−833.1	63.91	15 19.4	56 7.6	II. S.
15	17 20.10	1.839	11 1 24.14	120.51	+ 2 0 52.6	−887.3	64.22	15 31.5	56 52.2	II. S.
16	18 4.95	1.908	11 50 19.08	124.65	− 3 59 21.6	−907.7	65.36	15 45.3	57 42.7	II. S.
17	18 52.15	2.035	12 41 34.92	132.27	− 9 59 37.3	−885.5	67 38	16 0.0	58 36.7	II. S.
18	19 43.07	2.217	13 36 35.21	143.26	−15 40 15.9	−806.9	70.17	16 14.7	59 30.5	II. S.
19	20 38.90	2.438	14 36 30.56	156.53	−20 35 26.5	−655.7	73.41	16 27.8	60 18.9	II. S.
20	21 40.03	2.649	15 41 45.33	169.24	−24 13 46.5	−422.5	76.38	16 37.9	60 56.0	II. S.
21	22 45.39	2.777	16 51 14.10	176.93	−26 4 12.1	−121.0	78.13	16 43.3	61 15.7	II. N.
22	23 52.17	2.762	18 2 8.55	176.06	−25 47 23.9	+204.0	77.90	16 43.1	61 14.8	II. N.
24	0 56.88	2.612	19 10 58.41	166.99	−23 25 48.6	493.8	75.80	16 36.9	60 52.3	I. N.
25	1 56.00	2.392	20 15 11.12	153.74	−19 22 37.5	707.9	72.64	16 25.8	60 11.4	I. S.
26	2 51.60	2.172	21 13 59.00	140.52	−14 10 43.2	838.2	69.39	16 11.2	59 17.9	I. S.
27	3 41.58	1.994	22 7 56.67	129.83	− 8 21 39.2	896.6	66.67	15 55.0	58 18.2	I. S.
28	4 27.86	1.872	22 58 17.63	122.51	− 2 20 34.0	+901.2	64.76	15 38.7	57 18.3	I. S.
29	5 11.90	1.808	23 46 24.35	118.60	+ 3 34 5.0	866.5	63.72	15 23.6	56 22.9	I. S.
30	5 55.01	1.793	0 33 34.02	117.74	9 8 42.0	802.1	63.50	15 10.6	55 35.2	I. S.
31	6 38.31	1.822	1 20 56.26	119.45	+14 12 22.9	+712.2	63.96	15 0.1	54 56.8	I. S.

FOR TRANSIT AT WASHINGTON.

Date		Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S. T. of Sem. Pass. Mer.
		h m	h m s	° ′ ″	″	″	s
Jan	0	1 22.0	20 3 46.20	22 10 50.4	7.8	3.0	0.21
	1	1 23.9	20 9 31.55	21 46 55.2	7.9	3.0	0.21
	2	1 24.4	20 15 3.40	21 21 50.3	8.1	3.1	0.22
	3	1 25.7	20 20 18.58	20 56 0.0	8.3	3.2	0.22
	4	1 26.7	20 25 15.16	20 29 33.6	8.6	3.2	0.23
	5	1 27.3	20 29 50.59	20 2 44.4	8.8	3.3	0.24
	6	1 27.6	20 34 2.11	19 35 47.6	9.0	3.4	0.24
	7	1 27.4	20 37 46.72	19 8 50.9	9.3	3.5	0.25
	8	1 26.7	20 41 1.20	18 42 40.2	9.5	3.6	0.25
	9	1 25.5	20 43 42.56	18 17 9.3	9.8	3.7	0.26
	10	1 23.7	20 45 47.26	−17 52 40.2	10.1	3.8	0.26
	11	1 21.2	20 47 12.26	17 30 2.6	10.4	3.9	0.27
	12	1 18.0	20 47 54.76	17 9 12.6	10.8	4.0	0.28
	13	1 14.0	20 47 52.45	16 50 41.4	11.1	4.1	0.28
	14	1 9.3	20 47 3.88	16 34 48.7	11.4	4.3	0.29
	15	1 3.7	20 45 28.51	−16 21 51.7	11.7	4.4	0.30
	16	0 57.5	20 43 7.15	16 12 2.9	12.1	4.5	0.31
	17	0 50.6	20 40 2.14	16 5 20.0	12.4	4.6	0.32
	18	0 42.9	20 36 17.41	16 2 10.7	12.6	4.7	0.33
	19	0 34.6	20 31 58.58	16 2 2.4	12.9	4.8	0.34
	20	0 25.9	20 27 12.69	16 4 51.6	13.1	4.9	0.34
	21	0 16.9	20 22 7.90	16 10 21.4	13.3	5.0	0.35
	22	0 7.7	20 16 53.40	16 18 10.1	13.4	5.0	0.35
	22	23 58.5	20 11 38.05	16 27 54.2	13.4	5.1	0.36
	23	23 49.5	20 6 30.[illegible]	16 39 0.0	13.4	5.1	0.36
	24	23 40.6	20 1 32.41	16 51 31.2	13.3	5.0	0.35
	25	23 32.2	19 57 10.81	17 4 50.4	13.3	5.0	0.35
	26	23 24.1	19 53 10.32	17 18 13.7	13.2	4.9	0.34
	27	23 17.0	19 49 41.81	17 31 57.6	13.0	4.8	0.34
	28	23 10.1	19 46 47.81	17 45 37.0	12.8	4.8	0.34
	29	23 4.0	19 44 29.64	17 59 0.4	12.6	4.7	0.33
	30	22 58.3	19 42 47.4[illegible]	18 11 58.0	12.3	4.6	0.33
	31	22 53.2	19 41 40.78	18 24 21.7	12.1	4.5	0.32
Feb	1	22 48.7	19 41 8.41	18 36 4.9	11.8	4.4	0.32
	2	22 44.6	19 41 8.74	18 47 [illegible]	11.6	4.3	0.31
	3	22 41.4	19 41 39.70	18 57 8.5	11.3	4.2	0.31
	4	22 38.5	19 42 [illegible]	19 6 20.3	11.1	4.1	0.30
	5	22 3[illegible]	19 44 [illegible]	19 14 [illegible]	10.9	4.1	0.30
	6	22 33.2	19 45 [illegible]	19 21 [illegible]	10.7	4.0	0.29
	7	22 32.2	19 48 12.[illegible]	[illegible] 55.5	10.4	3.9	0.28
	8	22 3[illegible]	19 51 4[illegible]	[illegible]	10.2	3.9	0.28
	9	22 2[illegible]	19 55 42.[illegible]	[illegible]	10.0	3.8	0.27
	10	22 29.1	19 58 54.[illegible]	[illegible]	9.8	3.8	0.27
	11	22 28.6	20 0 22.[illegible]	19 41 12.[illegible]	9.7	3.7	0.26
	12	22 28.4	20 4 5.[illegible]	19 41 54.5	9.5	3.6	0.26
	13	22 2[illegible]	20 8 1.8[illegible]	19 40 4[illegible]	9.3	3.6	0.25
	14	22 2[illegible]	20 12 10.2[illegible]	19 3[illegible]	9.2	3.5	0.25

Date		Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S. T. of Sem. Pass. Mer.
		h m	h m s	° ′ ″	″	″	s
Feb	14	22 28.6	20 12 10.23	19 38 56.9	9.2	3.5	0.25
	15	22 29.0	20 16 29.75	19 35 15.8	9.0	3.4	0.25
	16	22 29.6	20 20 50.48	19 30 58.7	8.9	3.4	0.24
	17	22 30.3	20 25 38.52	19 24 45.0	8.8	3.3	0.24
	18	22 31.1	20 30 26.09	19 17 34.3	8.6	3.3	0.23
	19	22 32.0	20 35 21.46	19 9 6.2	8.5	3.2	0.23
	20	22 33.1	20 40 24.00	18 59 20.4	8.4	3.2	0.23
	21	22 34.4	20 45 33.09	18 48 16.7	8.3	3.1	0.22
	22	22 35.7	20 50 48.21	18 35 54.9	8.2	3.1	0.22
	23	22 37.0	20 56 8.89	18 22 15.0	8.1	3.0	0.21
	24	22 38.5	21 1 34.67	18 7 16.9	8.0	3.0	0.21
	25	22 40.0	21 7 5.17	17 51 0.3	7.9	3.0	0.21
	26	22 41.7	21 12 40.04	17 33 25.7	7.8	3.0	0.20
	27	22 43.5	21 18 18.90	17 14 32.9	7.7	2.9	0.20
	28	22 45.2	21 24 1.72	16 54 22.1	7.6	2.9	0.20
Mar	1	22 47.0	21 29 47.94	−16 32 55.5	7.5	2.9	0.20
	2	22 48.9	21 35 37.48	16 10 7.2	7.5	2.8	0.20
	3	22 50.8	21 41 30.14	15 46 3.3	7.4	2.8	0.19
	4	22 52.8	21 47 25.75	15 20 42.0	7.3	2.8	0.19
	5	22 54.8	21 53 24.17	14 54 3.6	7.2	2.7	0.19
	6	22 56.9	21 59 25.50	14 26 8.5	7.2	2.7	0.19
	7	22 59.0	22 5 29.04	13 56 56.8	7.1	2.7	0.19
	8	23 1.2	22 11 35.31	13 26 28.9	7.0	2.7	0.19
	9	23 3.4	22 17 44.11	12 54 45.0	7.0	2.6	0.18
	10	23 5.6	22 23 55.34	12 21 45.4	6.9	2.6	0.18
	11	23 7.9	22 30 9.03	11 47 30.3	6.9	2.6	0.18
	12	23 10.2	22 36 25.17	11 12 0.2	6.9	2.6	0.18
	13	23 12.6	22 42 43.70	10 35 15.5	6.8	2.6	0.18
	14	23 15.0	22 49 4.95	9 57 16.6	6.8	2.6	0.18
	15	23 17.4	22 55 28.69	9 18 4.1	6.8	2.6	0.17
	16	23 19.9	23 1 55.07	−8 37 38.4	6.7	2.5	0.17
	17	23 22.4	23 8 24.18	7 56 0.3	6.7	2.5	0.17
	18	23 25.0	23 14 56.12	7 13 10.5	6.7	2.5	0.17
	19	23 27.6	23 21 31.00	6 29 9.8	6.7	2.5	0.17
	20	23 30.4	23 28 8.95	5 43 59.3	6.6	2.5	0.17
	21	23 33.1	23 34 50.03	−4 57 40.1	6.6	2.5	0.17
	22	23 35.9	23 41 34.43	4 10 13.4	6.6	2.5	0.17
	23	23 38.7	23 48 22.25	3 21 41.1	6.6	2.5	0.17
	24	23 41.6	23 55 13.61	2 32 5.2	6.6	2.5	0.17
	25	23 44.6	0 2 8.62	1 41 27.9	6.6	2.5	0.17
	26	23 47.7	0 9 7.41	−0 49 51.7	6.6	2.5	0.17
	27	23 50.8	0 16 10.07	+0 2 40.5	6.6	2.5	0.17
	28	23 53.9	0 23 16.93	0 56 4.1	6.6	2.5	0.17
	29	23 57.1	0 30 27.14	1 50 15.6	6.6	2.5	0.17
	31	0 0.4	0 37 41.58	2 45 9.5	6.6	2.5	0.17
	32	0 3.7	0 44 59.88	+3 40 40.3	6.6	2.5	0.17
	33	0 7.1	0 52 21.95	+4 36 41.5	6.6	2.5	0.17

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Apr. 1	0 3.7	0 44 59.88	+ 3 40 40.3	6.6	2.5	0.17	May 17	0 18.9	4 1 40.24	+20 20 45.1	15.7	5.9	0.42
2	0 7.1	0 52 21.93	4 36 41.3	6.6	2.5	0.17	18	0 13.1	3 59 45.71	19 57 32.3	15.8	6.0	0.43
3	0 10.6	0 59 47.51	5 33 4.8	6.6	2.5	0.17	19	0 7.2	3 57 44.88	19 33 50.3	15.9	6.0	0.43
4	0 14.1	1 7 16.32	6 29 42.2	6.7	2.5	0.17	20	0 1.2	3 55 40.06	19 9 54.5	16.0	6.1	0.43
5	0 17.7	1 14 47.99	7 26 24.3	6.7	2.5	0.17	20	23 55.2	3 53 33.60	18 46 1.2	16.1	6.1	0.43
6	0 21.4	1 22 22.00	+ 8 23 0.4	6.7	2.5	0.17	21	23 49.1	3 51 27.77	+18 22 26.8	16.1	6.1	0.43
7	0 25.0	1 29 57.74	9 19 19.1	6.8	2.6	0.17	22	23 43.1	3 49 24.86	17 59 27.6	16.0	6.0	0.43
8	0 28.6	1 37 34.48	10 15 8.5	6.9	2.6	0.17	23	23 37.2	3 47 26.96	17 37 19.2	15.9	6.0	0.42
9	0 32.3	1 45 11.37	11 10 15.8	7.0	2.6	0.18	24	23 31.5	3 45 36.07	17 16 16.6	15.8	6.0	0.42
10	0 36.0	1 52 47.46	12 4 27.7	7.1	2.7	0.18	25	23 25.9	3 43 54.05	16 56 33.6	15.8	6.0	0.42
11	0 39.6	2 0 21.68	+12 57 31.1	7.2	2.7	0.18	26	23 20.5	3 42 22.51	+16 38 22.4	15.7	5.9	0.41
12	0 43.1	2 7 52.86	13 49 13.1	7.3	2.8	0.18	27	23 15.2	3 41 2.91	16 21 53.7	15.5	5.9	0.41
13	0 46.6	2 15 19.81	14 39 21.0	7.4	2.8	0.19	28	23 10.1	3 39 56.44	16 7 16.5	15.3	5.8	0.40
14	0 50.0	2 22 41.31	15 27 42.9	7.5	2.9	0.19	29	23 5.3	3 39 4.17	15 54 37.7	15.0	5.7	0.40
15	0 53.3	2 29 56.08	16 14 8.0	7.7	3.0	0.20	30	23 0.8	3 38 26.96	15 44 2.8	14.8	5.6	0.39
16	0 56.5	2 37 2.84	+16 58 26.7	7.8	3.0	0.20	31	22 56.5	3 38 5.46	+15 35 35.5	14.6	5.5	0.38
17	0 59.5	2 44 0.40	17 40 31.0	8.0	3.1	0.21	June 1	22 52.5	3 38 0.15	15 29 17.8	14.3	5.4	0.37
18	1 2.3	2 50 47.56	18 20 14.1	8.1	3.2	0.21	2	22 48.7	3 38 11.40	15 25 10.1	14.1	5.3	0.37
19	1 5.0	2 57 23.19	18 57 30.6	8.3	3.2	0.22	3	22 45.3	3 38 39.45	15 23 11.9	13.8	5.2	0.36
20	1 7.4	3 3 46.27	19 32 16.8	8.5	3.3	0.22	4	22 42.1	3 39 24.44	15 23 21.1	13.5	5.1	0.35
21	1 9.6	3 9 55.78	+20 4 29.9	8.7	3.3	0.23	5	22 39.2	3 40 26.43	+15 25 35.0	13.2	5.0	0.34
22	1 11.6	3 15 50.81	20 34 8.5	9.0	3.4	0.24	6	22 36.6	3 41 45.40	15 29 49.7	13.0	4.9	0.34
23	1 13.3	3 21 30.49	21 1 11.9	9.2	3.5	0.25	7	22 34.3	3 43 21.30	15 36 0.9	12.7	4.8	0.33
24	1 14.8	3 26 54.06	21 25 40.5	9.4	3.5	0.25	8	22 32.2	3 45 14.03	15 44 3.7	12.4	4.7	0.32
25	1 16.0	3 32 0.76	21 47 35.2	9.7	3.6	0.26	9	22 30.4	3 47 23.45	15 53 52.5	12.1	4.6	0.32
26	1 16.9	3 36 49.90	+22 6 57.4	9.9	3.7	0.27	10	22 28.9	3 49 49.44	+16 5 21.2	11.9	4.5	0.31
27	1 17.4	3 41 20.85	22 23 48.6	10.2	3.8	0.28	11	22 27.7	3 52 31.89	16 18 23.9	11.6	4.4	0.30
28	1 17.6	3 45 33.03	22 38 11.2	10.4	3.9	0.29	12	22 26.7	3 55 30.67	16 32 54.0	11.4	4.3	0.30
29	1 17.6	3 49 25.88	22 50 7.5	10.7	4.1	0.30	13	22 26.0	3 58 45.65	16 48 44.8	11.1	4.2	0.29
30	1 17.2	3 52 58.89	22 59 39.6	11.0	4.2	0.30	14	22 25.6	4 2 16.75	17 5 49.4	10.8	4.1	0.29
May 1	1 16.4	3 56 11.62	+23 6 49.8	11.3	4.3	0.31	15	22 25.4	4 6 3.90	+17 24 0.6	10.6	4.0	0.28
2	1 15.4	3 59 3.67	23 11 40.3	11.6	4.4	0.32	16	22 25.5	4 10 7.05	17 43 11.4	10.3	3.9	0.28
3	1 14.0	4 1 34.72	23 14 13.4	12.0	4.5	0.33	17	22 25.9	4 14 26.18	18 3 14.3	10.1	3.8	0.27
4	1 12.2	4 3 44.52	23 14 31.5	12.3	4.7	0.33	18	22 26.5	4 19 1.26	18 24 1.5	9.8	3.7	0.27
5	1 10.0	4 5 32.88	23 12 36.9	12.6	4.8	0.34	19	22 27.4	4 23 52.35	18 45 25.0	9.6	3.6	0.26
6	1 7.5	4 6 59.77	+23 8 32.1	12.9	4.9	0.35	20	22 28.6	4 28 59.46	+19 7 16.7	9.4	3.5	0.25
7	1 4.7	4 8 5.26	23 2 19.9	13.2	5.0	0.36	21	22 30.0	4 34 22.65	19 29 28.2	9.2	3.5	0.25
8	1 1.5	4 8 49.55	22 54 3.5	13.5	5.1	0.37	22	22 31.8	4 40 1.96	19 51 50.6	9.0	3.4	0.24
9	0 58.0	4 9 13.02	22 43 46.4	13.8	5.2	0.38	23	22 33.7	4 45 57.44	20 14 14.8	8.8	3.3	0.24
10	0 54.1	4 9 16.21	22 31 32.5	14.1	5.3	0.38	24	22 36.0	4 52 9.14	20 36 30.9	8.6	3.2	0.23
11	0 49.9	4 8 59.86	+22 17 27.0	14.4	5.4	0.39	25	22 38.5	4 58 37.08	+20 58 28.9	8.3	3.2	0.23
12	0 45.4	4 8 24.97	22 1 35.9	14.7	5.5	0.40	26	22 41.3	5 5 21.22	21 19 58.3	8.2	3.1	0.22
13	0 40.5	4 7 32.67	21 44 6.2	14.9	5.6	0.40	27	22 44.4	5 12 21.48	21 40 48.3	8.1	3.0	0.22
14	0 35.5	4 6 24.35	21 25 5.9	15.2	5.7	0.41	28	22 47.7	5 19 37.70	22 0 47.1	7.9	3.0	0.21
15	0 30.2	4 5 1.60	21 4 44.8	15.4	5.8	0.41	29	22 51.3	5 27 9.60	22 19 43.1	7.8	2.9	0.21
16	0 24 7	4 3 26.24	+20 43 13.8	15.6	5.9	0.42	30	22 55.1	5 34 56.80	+22 37 24.2	7.7	2.9	0.21
17	0 18.9	4 1 40.24	+20 20 45.1	15.7	5.9	0.42	31	22 59.1	5 42 58.77	+22 53 37.9	7.6	2.8	0 21

FOR TRANSIT AT WASHINGTON.

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S. T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
July 1	22 59.1	5 42 58.7[illegible]	+22 53 17.9	7.6	2.9	0.21
2	23 3.4	5 51 14.84	23 8 12.3	7.5	2.8	0.21
3	23 7.9	5 59 44.14	23 20 55.0	7.4	2.7	0.20
4	23 12.7	6 8 25.62	23 31 34.5	7.2	2.7	0.20
5	23 17.7	6 17 18.05	23 40 0.4	7.1	2.7	0.20
6	23 22.7	6 26 20.[illegible]	+23 46 2.8	7.0	2.7	0.20
7	23 27.9	6 35 30.[illegible]	23 49 33.2	6.9	2.6	0.19
8	23 33.2	6 44 46.45	23 50 25.3	6.9	2.6	0.19
9	23 38.7	6 54 7.38	23 48 33.8	6.8	2.6	0.19
10	23 44.1	7 3 31.06	23 43 56.0	6.8	2.6	0.19
11	23 49.6	7 12 55.70	+23 36 30.[illegible]	6.7	2.6	0.19
12	23 55.0	7 22 19.53	23 26 10.1	6.7	2.5	0.18
14	0 0.4	7 31 40.91	23 13 24.3	6.7	2.5	0.18
15	0 5.7	7 40 58.32	22 57 50.8	6.6	2.5	0.18
16	0 10.9	7 50 10.36	22 39 44.5	6.6	2.5	0.18
17	0 16.1	7 59 15.83	+22 19 12.5	6.6	2.5	0.18
18	0 21.1	8 8 13.71	21 56 22.6	6.6	2.5	0.18
19	0 26.0	8 17 3.22	21 31 23.4	6.6	2.5	0.18
20	0 30.7	8 25 43.42	21 4 23.8	6.6	2.5	0.18
21	0 35.3	8 34 14.07	20 35 32.7	6.6	2.5	0.18
22	0 39.7	8 42 34.[illegible]	+20 4 59.4	6.6	2.5	0.18
23	0 43.9	8 50 45.06	19 32 52.7	6.7	2.5	0.18
24	0 48.0	8 58 45.01	18 59 21.2	6.7	2.5	0.18
25	0 51.8	9 6 34.50	18 24 33.3	6.7	2.5	0.18
26	0 55.5	9 14 13.57	17 48 36.3	6.8	2.5	0.18
27	0 59.0	9 21 42.12	+17 11 38.3	6.8	2.6	0.18
28	1 2.3	9 29 0.86	16 33 46.1	6.8	2.6	0.18
29	1 5.5	9 36 9.76	15 55 6.5	6.9	2.6	0.18
30	1 8.5	9 43 8.64	15 15 45.7	6.9	2.6	0.18
31	1 11.4	9 49 57.12	14 35 49.3	7.0	2.6	0.18
Aug 1	1 14.2	9 56 36.82	+13 55 23.2	7.0	2.6	0.18
2	1 16.8	10 3 7.[illegible]	13 14 32.1	7.1	2.7	0.19
3	1 19.2	10 9 28.90	12 33 21.1	7.1	2.7	0.19
4	1 21.4	10 15 41.24	11 51 56.8	7.2	2.7	0.19
5	1 23.5	10 21 46.41	11 10 1[illegible]	7.3	2.8	0.19
6	1 25.5	10 27 43.6[illegible]	+10 28 31.8	7.3	2.8	0.19
7	1 27.3	10 33 30.8[illegible]	9 46 43.3	7.4	2.8	0.19
8	1 29.0	10 39 11.[illegible]	9 4 55.3	7.5	2.9	0.19
9	1 30.6	10 44 43.[illegible]	8 23 11.[illegible]	7.6	2.9	0.19
10	1 32.1	10 50 8.[illegible]	7 41 33.8	7.7	2.9	0.19
11	1 33.5	10 55 26.1[illegible]	+7 0 6.[illegible]	7.8	2.9	0.19
12	1 34.7	11 0 [illegible]	6 18 [illegible]	7.9	3.0	0.20
13	1 35.8	11 5 [illegible]	[illegible]	[illegible]	3.[illegible]	0.20
14	1 36.8	11 10 [illegible]	[illegible]	8.[illegible]	3.[illegible]	0.20
15	1 37.[illegible]	11 15 [illegible]	4 1[illegible]	8.1	3.0	0.20
16	1 [illegible]	11 20 4[illegible]	[illegible]	8.2	3.[illegible]	0.2[illegible]
17	[illegible]	11 24 [illegible] 44	[illegible]	8.4	3.[illegible]	0.2[illegible]

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S. T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
Aug 17	1 39.0	11 24 58.44	+2 57 56.8	8.4	3.1	0.21
18	1 39.5	11 29 5.10	2 19 9.2	8.5	3.2	0.21
19	1 39.9	11 33 24.36	1 40 56.9	8.6	3.2	0.21
20	1 40.1	11 37 36.08	1 3 23.3	8.7	3.3	0.22
21	1 40.2	11 41 40.09	+0 26 32.0	8.8	3.3	0.22
22	1 40.2	11 45 36.16	−0 9 33.2	9.0	3.4	0.22
23	1 40.1	11 49 24.06	0 44 48.6	9.1	3.5	0.23
24	1 39.8	11 53 3.45	1 19 9.8	9.2	3.5	0.23
25	1 39.4	11 56 34.01	1 52 32.7	9.3	3.6	0.23
26	1 38.8	11 59 55.30	2 24 52.1	9.5	3.7	0.24
27	1 38.0	12 3 6.88	2 56 2.9	9.6	3.7	0.24
28	1 37.2	12 6 8.22	3 25 59.7	9.8	3.8	0.25
29	1 36.2	12 8 58.75	3 54 36.2	10.0	3.8	0.25
30	1 34.8	12 11 37.82	4 21 45.9	10.2	3.9	0.25
31	1 33.3	12 14 4.71	4 47 21.5	10.3	3.9	0.26
Sept 1	1 31.6	12 16 18.65	5 11 15.1	10.5	4.0	0.26
2	1 29.7	12 18 18.40	5 33 18.9	10.7	4.0	0.27
3	1 27.5	12 20 4.26	5 53 23.1	10.9	4.1	0.27
4	1 25.1	12 21 34.09	6 11 18.0	11.1	4.1	0.28
5	1 22.4	12 22 47.30	6 26 52.7	11.3	4.2	0.28
6	1 19.4	12 23 42.86	6 39 55.9	11.5	4.3	0.29
7	1 16.0	12 24 19.74	6 50 15.4	11.7	4.4	0.29
8	1 12.3	12 24 3[illegible]	6 57 18.6	11.9	4.5	0.30
9	1 8.3	12 24 33.4[illegible]	7 1 52.6	12.1	4.6	0.31
10	1 4.0	12 24 8.53	7 2 44.3	12.3	4.7	0.31
11	0 59.2	12 23 21.45	−7 0 0.8	12.6	4.7	0.32
12	0 54.2	12 22 11.7[illegible]	6 53 30.4	12.8	4.8	0.32
13	0 48.7	12 20 39.33	6 43 2.8	13.0	4.9	0.33
14	0 42.9	12 18 44.47	6 28 30.5	13.1	4.9	0.33
15	0 36.7	12 16 27.8[illegible]	6 9 40.6	13.3	5.0	0.33
16	0 30.2	12 13 50.25	−5 47 0.7	13.4	5.0	0.34
17	0 23.3	12 10 55.06	5 20 10.5	13.5	5.0	0.34
18	0 16.1	12 7 44.71	4 49 32.5	13.6	5.1	0.34
19	0 8.8	12 4 21.56	4 15 28.3	13.6	5.1	0.34
20	0 1.4	12 0 50.22	3 38 20.5	13.5	5.1	0.34
20	23 53.2	11 57 15.51	−2 59 8.2	13.5	5.1	0.34
21	23 46.4	11 53 42.60	2 18 15.5	13.4	5.1	0.34
22	23 39.1	11 50 16.[illegible]	1 36 32.2	13.3	5.1	0.34
23	23 32.0	11 47 4.17	0 55 25.6	13.1	5.0	0.33
24	23 25.2	11 44 9.5[illegible]	−0 14 58.2	13.0	4.9	0.33
25	23 18.7	11 41 38.02	+0 23 18.5	12.8	4.9	0.32
26	23 12.7	11 39 34.76	0 58 44.9	12.5	4.8	0.32
27	23 7.2	11 38 1.16	1 30 [illegible]	12.2	4.6	0.31
28	23 2.2	11 37 2.11	1 58 17.3	11.9	4.5	0.30
29	22 57.9	11 36 38.06	2 21 19.6	11.6	4.3	0.29
30	22 54.1	11 36 51.75	+2 39 21.9	11.2	4.2	0.29
1	22 51.2	11 37 41.42	+2 52 15.1	10.9	4.1	0.28

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct. 1	22 51.2	11 37 41.42	+ 2 52 13.1	10.9	4.1	0.28	Nov. 17	0 7.0	15 55 5.98	−21 21 46.7	6.1	2.3	0.17
2	22 48.7	11 39 6.97	2 59 48.8	10.5	4.0	0.27	18	0 9.5	16 1 35.65	21 46 31.5	6.2	2.3	0.17
3	22 46.7	11 41 7.03	3 2 11.4	10.2	3.9	0.26	19	0 12.1	16 8 6.76	22 10 11.5	6.2	2.3	0.17
4	22 45.3	11 43 39.69	2 59 29.1	9.9	3.7	0.25	20	0 14.8	16 14 39.32	22 32 45.4	6.2	2.3	0.17
5	22 44.4	11 46 42.69	2 51 54.2	9.6	3.6	0.25	21	0 17.4	16 21 13.30	22 54 11.6	6.2	2.3	0.17
6	22 44.0	11 50 13.48	+ 2 39 43.4	9.3	3.5	0.24	22	0 20.0	16 27 48.68	−23 14 28.6	6.2	2.3	0.17
7	22 44.0	11 54 9.32	2 23 16.0	9.0	3.4	0.23	23	0 22.7	16 34 25.41	23 33 35.3	6.3	2.4	0.17
8	22 44.4	11 58 27.46	2 2 52.8	8.8	3.3	0.22	24	0 25.4	16 41 3.43	23 51 30.1	6.3	2.4	0.17
9	22 45.1	12 3 5.25	1 38 55.7	8.5	3.2	0.22	25	0 28.1	16 47 42.66	24 8 11.4	6.3	2.4	0.18
10	22 46.1	12 8 0.07	1 11 47.2	8.3	3.2	0.21	26	0 30.8	16 54 23.00	24 23 37.8	6.4	2.4	0.18
11	22 47.3	12 13 9.49	+ 0 41 49.3	8.1	3.1	0.21	27	0 33.6	17 1 4.32	−24 37 47.9	6.4	2.4	0.18
12	22 48.6	12 18 31.29	+ 0 9 23.4	7.9	3.0	0.20	28	0 36.3	17 7 46.48	24 50 40.3	6.4	2.4	0.18
13	22 50.2	12 24 3.47	− 0 25 10.4	7.8	3.0	0.20	29	0 39.0	17 14 29.31	25 2 13.6	6.5	2.5	0.18
14	22 52.0	12 29 44.27	1 1 33.1	7.6	2.9	0.19	30	0 41.8	17 21 12.60	25 12 26.5	6.5	2.5	0.18
15	22 53.8	12 35 32.13	1 39 27.0	7.5	2.8	0.19	Dec. 1	0 44.6	17 27 56.09	25 21 17.4	6.6	2.5	0.18
16	22 55.7	12 41 25.72	− 2 18 35.9	7.3	2.8	0.18	2	0 47.3	17 34 39.54	−25 28 45.0	6.6	2.5	0.18
17	22 57.7	12 47 23.90	2 58 45.1	7.2	2.7	0.18	3	0 50.1	17 41 22.63	25 34 48.4	6.7	2.5	0.18
18	22 59.8	12 53 25.74	3 39 41.4	7.1	2.7	0.18	4	0 52.9	17 48 5.01	25 39 26.4	6.7	2.6	0.18
19	23 2.0	12 59 30.44	4 21 13.6	7.0	2.6	0.18	5	0 55.6	17 54 46.27	25 42 38.1	6.8	2.6	0.18
20	23 4.1	13 5 37.32	5 3 10.4	6.9	2.6	0.17	6	0 58.3	18 1 25.94	25 44 22.2	6.9	2.6	0.19
21	23 6.3	13 11 45.89	− 5 45 23.1	6.8	2.6	0.17	7	1 1.0	18 8 3.51	−25 44 38.2	7.0	2.6	0.19
22	23 8.5	13 17 55.71	6 27 43.3	6.7	2.5	0.17	8	1 3.6	18 14 38.40	25 43 25.7	7.1	2.7	0.19
23	23 10.8	13 24 6.46	7 10 3.5	6.6	2.5	0.17	9	1 6.2	18 21 9.94	25 40 44.1	7.2	2.7	0.20
24	23 13.1	13 30 17.91	7 52 17.4	6.6	2.5	0.17	10	1 8.7	18 27 37.34	25 36 33.7	7.3	2.7	0.20
25	23 15.3	13 36 29.88	8 34 19.2	6.5	2.4	0.17	11	1 11.1	18 33 59.76	25 30 54.7	7.4	2.8	0.21
26	23 17.6	13 42 42.24	− 9 16 4.1	6.5	2.4	0.16	12	1 13.4	18 40 16.26	−25 23 47.6	7.5	2.8	0.21
27	23 19.8	13 48 54.90	9 57 27.5	6.4	2.4	0.16	13	1 15.6	18 46 25.73	25 15 14.0	7.6	2.9	0.21
28	23 22.1	13 55 7.81	10 38 25.4	6.4	2.4	0.16	14	1 17.7	18 52 26.90	25 5 15.9	7.8	2.9	0.22
29	23 24.4	14 1 20.98	11 18 54.2	6.4	2.4	0.16	15	1 19.6	18 58 18.37	24 53 55.2	7.9	3.0	0.22
30	23 26.7	14 7 34.42	11 58 51.2	6.3	2.4	0.16	16	1 21.4	19 3 58.55	24 41 15.4	8.1	3.0	0.23
31	23 28.9	14 13 48.14	−12 38 12.8	6.3	2.4	0.16	17	1 22.9	19 9 25.67	−24 27 20.7	8.2	3.1	0.23
Nov. 1	23 31.2	14 20 2.20	13 16 57.0	6.2	2.4	0.16	18	1 24.2	19 14 37.69	24 12 16.0	8.4	3.2	0.23
2	23 33.5	14 26 16.68	13 55 1.3	6.2	2.4	0.16	19	1 25.1	19 19 32.36	23 56 7.5	8.6	3.2	0.24
3	23 35.8	14 32 31.64	14 32 23.8	6.2	2.3	0.16	20	1 25.7	19 24 7.18	23 39 2.9	8.8	3.3	0.24
4	23 38.1	14 38 47.16	15 9 2.4	6.2	2.3	0.16	21	1 26.0	19 28 19.40	23 21 10.6	9.1	3.4	0.25
5	23 40.4	14 45 3.30	−15 44 55.0	6.2	2.3	0.16	22	1 25.8	19 32 5.95	−23 2 41.2	9.3	3.5	0.25
6	23 42.8	14 51 20.16	16 20 0.2	6.1	2.3	0.16	23	1 25.1	19 35 23.61	22 43 46.1	9.6	3.6	0.26
7	23 45.1	14 57 37.84	16 54 16.4	6.1	2.3	0.16	24	1 23.9	19 38 8.96	22 24 38.2	9.8	3.7	0.27
8	23 47.5	15 3 56.40	17 27 41.9	6.1	2.3	0.16	25	1 22.2	19 40 18.37	22 5 31.7	10.1	3.8	0.27
9	23 49.8	15 10 15.94	18 0 15.2	6.1	2.3	0.16	26	1 19.8	19 41 48.28	21 46 41.9	10.4	3.9	0.28
10	23 52.2	15 16 36.54	−18 31 54.8	6.1	2.3	0.16	27	1 16.7	19 42 35.37	−21 28 24.0	10.7	4.0	0.29
11	23 54.6	15 22 58.26	19 2 39.2	6.1	2.3	0.16	28	1 12.7	19 42 36.60	21 10 53.7	11.0	4.2	0.30
12	23 57.1	15 29 21.18	19 32 27.1	6.1	2.3	0.16	29	1 8.0	19 41 49.63	20 54 26.0	11.3	4.3	0.31
13	23 59.5	15 35 45.36	20 1 17.2	6.1	2.3	0.16	30	1 2.4	19 40 13.15	20 39 14.2	11.7	4.4	0.31
15	0 2.0	15 42 10.86	20 29 8.1	6.1	2.3	0.17	31	0 56.1	19 37 47.19	20 25 29.5	12.0	4.5	0.32
16	0 4.5	15 48 37.72	20 55 58.4	6.1	2.3	0.17	32	0 48.9	19 34 33.38	−20 13 20.1	12.3	4.6	0.33
17	0 7.0	15 55 5.98	21 21 46.7	6.1	2.3	0.17	33	0 41.0	19 30 35.37	20 2 51.7	12.5	4.7	0.34

FOR TRANSIT AT WASHINGTON.

Date	Mean Time of Transit	Apparent Right Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S. T. of Semi-diam. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
Jan 0	2 59.8	21 42 48.26	15 36 4.6	8.6	8.3	0.57
1	3 0.4	21 47 23.14	15 10 37.2	8.6	8.4	0.58
2	3 1.0	21 51 56.41	14 44 47.6	8.7	8.4	0.55
3	3 1.6	21 56 28.[illegible]	14 18 56.5	8.7	8.4	0.58
4	3 2.2	22 0 59.21	13 52 5.4	8.8	8.5	0.59
5	3 2.7	22 5 26.73	13 25 14.2	8.9	8.6	0.59
6	3 3.2	22 9 53.73	12 58 4.1	8.9	8.6	0.59
7	3 3.7	22 14 19.15	12 30 35.8	9.0	8.7	0.59
8	3 4.2	22 18 43.05	12 2 50.2	9.0	8.7	0.60
9	3 4.6	22 23 5.42	11 34 48.3	9.1	8.8	0.60
10	3 5.0	22 27 26.28	11 6 30.8	9.2	8.9	0.60
11	3 5.4	22 31 45.66	10 37 58.5	9.2	8.9	0.60
12	3 5.8	22 36 3.55	10 9 12.1	9.3	9.0	0.61
13	3 6.1	22 40 19.[illegible]	9 40 12.6	9.3	9.0	0.61
14	3 6.4	22 44 34.95	9 11 0.6	9.4	9.1	0.61
15	3 6.7	22 48 48.51	8 41 36.9	9.5	9.2	0.62
16	3 6.9	22 53 0.65	8 12 2.4	9.6	9.3	0.62
17	3 7.1	22 57 11.[illegible]	7 42 17.8	9.7	9.3	0.62
18	3 7.3	23 1 20.[illegible]	7 12 21.8	9.8	9.4	0.63
19	3 7.5	23 5 28.[illegible]	6 42 21.1	9.9	9.5	0.63
20	3 7.7	23 9 35.51	6 12 10.6	9.9	9.6	0.64
21	3 7.8	23 13 40.[illegible]	5 41 52.9	10.0	9.6	0.64
22	3 8.0	23 17 45.[illegible]	5 11 2[illegible]	10.1	9.7	0.65
23	3 8.1	23 21 47.84	4 40 5[illegible]	10.2	9.8	0.65
24	3 8.2	23 25 49.41	4 10 23.8	10.3	9.8	0.66
25	3 8.3	23 29 49.[illegible]	3 39 44.6	[illegible]	[illegible]	0.6[illegible]
26	3 8.4	23 33 48.24	3 9 1.7	[illegible]	[illegible]	0.6[illegible]
27	3 8.4	23 37 4[illegible]	2 38 15.[illegible]	[illegible]	[illegible]	[illegible]
28	3 8.4	23 41 41.[illegible]	2 7 2[illegible]	[illegible]	10.[illegible]	[illegible]
29	3 8.4	23 45 [illegible]	1 36 [illegible]	[illegible]	[illegible]	[illegible]
30	3 8.3	23 49 31.[illegible]	1 5 48.4	[illegible]	[illegible]	[illegible]
31	3 8.[illegible]	23 53 [illegible]	0 34 5[illegible]	[illegible]	10.[illegible]	[illegible]
Feb 1	3 8.[illegible]	23 57 19.[illegible]	0 4 8.[illegible]	11.[illegible]	[illegible]	[illegible]
2	3 8.1	0 1 [illegible]	[illegible]	11.[illegible]	[illegible]	[illegible]
3	3 8.[illegible]	0 4 [illegible]	0 5[illegible]	11.[illegible]	[illegible]	[illegible]
4	3 7.[illegible]	0 8 4[illegible]	1 2[illegible]	11.[illegible]	[illegible]	[illegible]
5	3 7.8	0 12 [illegible]	1 5[illegible]	11.[illegible]	11.[illegible]	[illegible]
6	3 7.6	0 16 [illegible]	[illegible]	11.[illegible]	11.[illegible]	[illegible]
7	3 7.4	0 20 7.[illegible]	[illegible]	11.[illegible]	11.[illegible]	[illegible]
8	3 7.[illegible]	0 23 5[illegible]	3 3[illegible]	11.[illegible]	11.[illegible]	[illegible]
9	3 7.0	0 27 3[illegible]	4 [illegible]	11.[illegible]	11.[illegible]	[illegible]
10	3 6.[illegible]	0 31 [illegible]	4 [illegible] 44.[illegible]	[illegible]	11.[illegible]	0.[illegible]
11	3 6.4	0 34 [illegible]	5 [illegible]	[illegible]	[illegible]	[illegible]
12	3 6.1	0 3[illegible]	5 [illegible]	[illegible]	[illegible]	[illegible]
13	3 5.8	0 42 14.[illegible]	6 [illegible]	[illegible]	[illegible]	[illegible]
14	3 5.5	0 45 51.[illegible]	6 29 [illegible]	12.[illegible]	12.[illegible]	[illegible]
15	3 5.2	0 49 2[illegible]	+6 59 22.1	12.[illegible]	12.[illegible]	[illegible]
Feb 15	3 5.2	0 49 2[illegible]	+6 59 22.1	12.6	12.2	0.81
16	3 4.8	0 53 1.[illegible]	7 28 34.3	12.7	12.3	0.83
17	3 4.4	0 56 31.[illegible]	7 57 34.5	12.9	12.5	0.84
18	3 4.0	1 0 5.34	8 26 21.9	13.0	12.6	0.85
19	3 3.6	1 3 35.[illegible]	8 54 56.1	13.2	12.7	0.86
20	3 3.1	1 7 [illegible]	+9 23 16.3	13.3	12.9	0.87
21	3 2.6	1 10 31.[illegible]	9 51 21.8	13.5	13.0	0.88
22	3 2.0	1 13 5[illegible]	10 19 12.2	13.6	13.2	0.89
23	3 1.5	1 17 20.66	10 46 46.[illegible]	13.8	13.3	0.90
24	3 0.9	1 20 43.04	11 14 4.8	13.9	13.5	0.91
25	3 0.3	1 24 3.73	+11 41 5.8	14.1	13.6	0.92
26	2 59.7	1 27 22.66	12 7 49.0	14.3	13.8	0.94
27	2 59.1	1 30 39.78	12 34 13.6	14.5	14.0	0.95
28	2 58.4	1 33 55.01	13 0 19.2	14.6	14.1	0.96
Mar 1	2 57.6	1 37 8.27	13 26 5.0	14.8	14.3	0.98
2	2 56.8	1 40 19.46	+13 51 31.3	15.0	14.5	0.99
3	2 56.0	1 43 28.50	14 16 34.4	15.2	14.7	1.00
4	2 55.2	1 46 35.27	14 41 16.5	15.4	14.9	1.02
5	2 54.4	1 49 39.64	15 5 36.0	15.6	15.1	1.03
6	2 53.5	1 52 41.90	15 29 32.0	15.8	15.3	1.05
7	2 52.6	1 55 40.72	+15 53 3.8	16.0	15.5	1.07
8	2 51.6	1 58 37.19	16 16 10.7	16.2	15.7	1.08
9	2 50.5	2 1 30.[illegible]	16 38 51.9	16.4	15.9	1.10
10	2 49.3	2 4 21.27	17 1 6.6	16.7	16.2	1.11
11	2 48.1	2 7 8.55	17 22 54.0	16.9	16.4	1.13
12	2 46.9	2 9 52.44	+17 44 13.3	17.1	16.6	1.15
13	2 45.7	2 12 32.78	18 5 3.7	17.4	16.8	1.17
14	2 44.4	2 15 9.[illegible]	18 25 24.3	17.6	17.1	1.19
15	2 43.0	2 17 42.08	18 45 14.2	17.9	17.3	1.21
16	2 41.6	2 20 10.64	19 4 32.7	18.1	17.6	1.23
17	2 4[illegible]	2 22 34.8[illegible]	+19 23 18.3	18.4	17.8	1.25
18	2 3[illegible]	2 24 54.[illegible]	19 41 31.8	18.7	18.1	1.27
19	[illegible]	2 27 9.[illegible]	19 59 10.4	19.0	18.3	1.29
20	2 3[illegible]	2 29 1[illegible]	20 16 13.8	19.3	18.6	1.32
21	[illegible]	2 31 24.4[illegible]	20 32 40.[illegible]	19.6	18.9	1.34
22	[illegible]	2 33 2[illegible]	+20 48 30.6	19.9	19.2	1.36
23	[illegible]	2 35 17.6[illegible]	21 3 42.[illegible]	20.2	19.5	1.38
24	[illegible]	2 37 5.[illegible]	21 18 13.6	20.5	19.8	1.41
25	[illegible]	2 38 4[illegible]	21 3[illegible] 4.1	20.[illegible]	20.2	1.43
26	[illegible]	2 40 22.76	21 45 12.3	21.2	20.5	1.46
27	[illegible]	2 41 51.4[illegible]	+21 57 5[illegible]	21.[illegible]	20.8	1.48
28	[illegible]	2 43 1[illegible]	22 9 16.4	21.[illegible]	21.2	1.51
29	[illegible]	2 44 2[illegible]	22 20 9.[illegible]	22.[illegible]	21.5	1.53
30	[illegible]	2 45 [illegible] 14	22 [illegible]	22.[illegible]	21.[illegible]	1.56
31	[illegible]	2 4[illegible] 54.[illegible]	22 3[illegible]	22.[illegible]	22.2	1.59
[illegible]	[illegible]	2 47 [illegible]	+22 47 4[illegible]	23.[illegible]	22.5	1.62
[illegible]	2 28.[illegible]	2 48 [illegible]	+22 55 15.4	23.[illegible]	22.8	1.65

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
Apr. 1	2 5.8	2 47 26.19	+22 47 48.2	23.3	22.5	1.62
2	2 2.5	2 48 9.52	22 55 15.4	23.7	22.8	1.65
3	1 59.2	2 48 44.40	23 1 46.4	24.0	23.2	1.68
4	1 55.8	2 49 10.57	23 7 19.2	24.4	23.5	1.70
5	1 52.1	2 49 27.83	23 11 51.5	24.8	23.9	1.73
6	1 48.3	2 49 35.97	+23 15 21.1	25.2	24.3	1.76
7	1 44.4	2 49 34.87	23 17 45.5	25.5	24.7	1.78
8	1 40.3	2 49 24.37	23 19 2.3	25.9	25.0	1.81
9	1 36.0	2 49 4.41	23 19 9.2	26.3	25.4	1.83
10	1 31.6	2 48 34.94	23 18 3.8	26.6	25.7	1.86
11	1 27.1	2 47 55.95	+23 15 44.2	27.0	26.1	1.89
12	1 22.3	2 47 7.50	23 12 8.4	27.4	26.4	1.91
13	1 17.4	2 46 9.74	23 7 14.8	27.7	26.8	1.94
14	1 12.4	2 45 2.87	23 1 1.7	28.1	27.1	1.97
15	1 7.1	2 43 47.18	22 53 27.8	28.5	27.5	1.99
16	1 1.8	2 42 22.99	+22 44 32.0	28.8	27.8	2.01
17	0 56.4	2 40 50.70	22 34 14.0	29.1	28.1	2.02
18	0 50.9	2 39 10.83	22 22 34.0	29.4	28.4	2.04
19	0 45.1	2 37 23.97	22 9 32.9	29.6	28.6	2.06
20	0 39.3	2 35 30.76	21 55 12.0	29.9	28.9	2.07
21	0 33.4	2 33 31.91	+21 39 33.4	30.1	29.1	2.09
22	0 27.3	2 31 28.17	21 22 39.9	30.3	29.3	2.10
23	0 21.3	2 29 20.38	21 4 34.9	30.5	29.5	2.11
24	0 15.2	2 27 9.40	20 45 22.6	30.6	29.6	2.11
25	0 9.0	2 24 56.13	20 25 8.0	30.7	29.7	2.10
26	0 2.9	2 22 41.48	+20 3 56.6	30.8	29.8	2.10
26	23 56.7	2 20 26.37	19 41 54.7	30.9	29.9	2.10
27	23 50.5	2 18 11.75	19 19 9.0	30.9	29.9	2.10
28	23 44.4	2 15 58.53	18 55 46.9	30.9	29.8	2.09
29	23 38.3	2 13 47.58	18 31 56.0	30.8	29.8	2.09
30	23 32.2	2 11 39.74	+18 7 44.1	30.8	29.7	2.08
May 1	23 26.1	2 9 35.82	17 43 19.3	30.7	29.6	2.07
2	23 20.1	2 7 36.59	17 18 49.5	30.5	29.4	2.06
3	23 14.4	2 5 42.76	16 54 22.9	30.3	29.3	2.05
4	23 8.7	2 3 54.98	16 30 7.4	30.1	29.1	2.04
5	23 3.1	2 2 13.81	+16 6 10.5	29.9	28.9	2.02
6	22 57.6	2 0 39.78	15 42 39.3	29.6	28.7	2.00
7	22 52.3	1 59 13.33	15 19 40.6	29.4	28.4	1.97
8	22 47.1	1 57 54.83	14 57 20.5	29.1	28.1	1.95
9	22 42.1	1 56 44.59	14 35 44.5	28.8	27.8	1.93
10	22 37.1	1 55 42.83	+14 14 57.8	28.5	27.5	1.90
11	22 32.2	1 54 49.79	13 55 4.9	28.2	27.2	1.88
12	22 27.6	1 54 5.59	13 36 9.8	27.8	26.9	1.85
13	22 23.1	1 53 30.30	13 18 15.6	27.5	26.5	1.82
14	22 18.7	1 53 3.99	13 1 24.9	27.1	26.2	1.79
15	22 14.4	1 52 46.63	+12 45 39.7	26.7	25.8	1.76
16	22 10.4	1 52 38.18	+12 31 1.5	26.3	25.4	1.74
May 16	22 10.4	1 52 38.18	+12 31 1.5	26.3	25.4	1.74
17	22 6.4	1 52 38.53	12 17 31.2	25.9	25.1	1.72
18	22 2.6	1 52 47.56	12 5 9.5	25.5	24.7	1.69
19	21 59.0	1 53 5.13	11 53 56.5	25.1	24.3	1.66
20	21 55.5	1 53 31.08	11 43 51.8	24.7	23.9	1.63
21	21 52.1	1 54 5.23	+11 34 54.7	24.3	23.5	1.60
22	21 48.8	1 54 47.36	11 27 4.5	24.0	23.1	1.58
23	21 45.8	1 55 37.26	11 20 20.0	23.6	22.7	1.55
24	21 42.8	1 56 34.71	11 14 39.7	23.2	22.3	1.53
25	21 39.9	1 57 39.47	11 10 2.1	22.8	22.0	1.50
26	21 37.3	1 58 51.31	+11 6 25.5	22.4	21.6	1.48
27	21 34.7	2 0 10.00	11 3 48.1	22.1	21.3	1.45
28	21 32.2	2 1 35.31	11 2 8.1	21.7	20.9	1.43
29	21 29.8	2 3 7.00	11 1 23.2	21.4	20.6	1.40
30	21 27.4	2 4 44.85	11 1 31.6	21.0	20.3	1.38
31	21 25.2	2 6 28.65	+11 2 31.4	20.7	20.0	1.35
June 1	21 23.1	2 8 18.19	11 4 20.4	20.3	19.6	1.33
2	21 21.1	2 10 13.28	11 6 56.7	20.0	19.3	1.31
3	21 19.1	2 12 13.72	11 10 18.2	19.7	19.0	1.29
4	21 17.2	2 14 19.33	11 14 23.0	19.4	18.7	1.27
5	21 15.4	2 16 29.94	+11 19 9.3	19.1	18.4	1.25
6	21 13.8	2 18 45.35	11 24 35.0	18.8	18.1	1.23
7	21 12.2	2 21 5.45	11 30 38.1	18.5	17.8	1.22
8	21 10.7	2 23 30.06	11 37 16.8	18.2	17.5	1.20
9	21 9.2	2 25 59.05	11 44 29.3	17.9	17.3	1.18
10	21 7.8	2 28 32.28	+11 52 13.7	17.7	17.0	1.16
11	21 6.5	2 31 9.62	12 0 28.3	17.4	16.8	1.15
12	21 5.2	2 33 50.95	12 9 11.3	17.2	16.5	1.13
13	21 4.1	2 36 36.15	12 18 21.0	16.9	16.3	1.12
14	21 3.0	2 39 25.11	12 27 55.7	16.7	16.1	1.10
15	21 1.9	2 42 17.74	+12 37 53.6	16.5	15.8	1.09
16	21 0.9	2 45 13.92	12 48 13.3	16.2	15.6	1.07
17	20 59.9	2 48 13.56	12 58 53.1	16.0	15.4	1.06
18	20 59.0	2 51 16.56	13 9 51.3	15.7	15.2	1.04
19	20 58.1	2 54 22.84	13 21 6.3	15.5	15.0	1.03
20	20 57.3	2 57 32.30	+13 32 36.5	15.3	14.8	1.02
21	20 56.6	3 0 44.87	13 44 20.6	15.1	14.6	1.00
22	20 56.0	3 4 0.46	13 56 17.0	14.9	14.4	0.99
23	20 55.4	3 7 18.98	14 8 24.4	14.7	14.2	0.98
24	20 54.8	3 10 40.36	14 20 41.2	14.5	14.0	0.97
25	20 54.2	3 14 4.54	+14 33 6.1	14.3	13.8	0.96
26	20 53.7	3 17 31.43	14 45 37.8	14.1	13.6	0.94
27	20 53.3	3 21 0.07	14 58 14.8	13.9	13.5	0.93
28	20 52.9	3 24 33.10	15 10 56.0	13.8	13.3	0.92
29	20 52.5	3 28 7.76	15 23 40.2	13.6	13.2	0.91
30	20 52.2	3 31 44.91	+15 36 26.1	13.4	13.0	0.90
31	20 51.9	3 35 24.48	+15 49 12.5	13.3	12.9	0.89

FOR TRANSIT AT WASHINGTON.

Date	Mean Time of Transit	Apparent R Ascension at Transit	Apparent Declination at Transit	Hor Par	Semi-diam	S.T. of Sem. Pass. Mer.	Date	Mean Time of Transit	Apparent R Ascension at Transit	Apparent Declination at Transit	Hor Par	Semi-diam	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
July 1	20 51.9	3 35 24.48	+15 49 12.5	13.3	12.9	0.89	Aug 16	21 11.8	6 56 42.04	+21 13 34.1	8.7	8.4	0.60
2	20 51.6	3 39 6.43	16 1 58.3	13.1	12.7	0.88	17	21 12.7	7 1 32.92	21 10 25.1	8.6	8.3	0.60
3	20 51.4	3 42 50.72	16 14 42.3	13.0	12.6	0.87	18	21 13.6	7 6 23.21	21 6 42.9	8.5	8.2	0.59
4	20 51.3	3 46 37.31	16 27 23.5	12.8	12.4	0.86	19	21 14.5	7 11 14.44	21 2 27.2	8.5	8.2	0.59
5	20 51.2	3 50 26.15	16 40 0.8	12.6	12.3	0.85	20	21 15.4	7 16 6.02	20 57 38.1	8.4	8.1	0.58
6	20 51.1	3 54 17.20	+16 52 33.0	12.5	12.1	0.84	21	21 16.3	7 20 57.89	+20 52 15.5	8.4	8.1	0.58
7	20 51.1	3 58 10.45	17 4 59.1	12.3	12.0	0.84	22	21 17.2	7 25 49.99	20 46 19.2	8.3	8.0	0.57
8	20 51.1	4 2 5.85	17 17 18.3	12.2	11.8	0.83	23	21 18.1	7 30 42.29	20 39 49.3	8.3	8.0	0.57
9	20 51.1	4 6 3.37	17 29 29.3	12.1	11.7	0.82	24	21 19.1	7 35 34.74	20 32 45.8	8.2	7.9	0.57
10	20 51.2	4 10 2.97	17 41 31.2	12.0	11.6	0.81	25	21 20.0	7 40 27.29	20 25 8.7	8.2	7.9	0.56
11	20 51.2	4 14 4.65	+17 53 23.1	11.8	11.5	0.80	26	21 20.9	7 45 19.88	+20 16 58.1	8.1	7.8	0.56
12	20 51.3	4 18 8.35	18 5 4.0	11.7	11.3	0.80	27	21 21.8	7 50 12.48	20 8 14.0	8.1	7.7	0.55
13	20 51.4	4 22 14.05	18 16 32.9	11.6	11.2	0.79	28	21 22.8	7 55 5.03	19 58 56.5	8.0	7.7	0.55
14	20 51.6	4 26 21.73	18 27 48.9	11.5	11.1	0.78	29	21 23.8	7 59 57.47	19 49 5.9	8.0	7.6	0.55
15	20 51.9	4 30 31.34	18 38 50.9	11.4	11.0	0.77	30	21 24.7	8 4 49.82	19 38 42.4	7.9	7.6	0.54
16	20 52.1	4 34 42.85	+18 49 38.1	11.2	10.9	0.77	31	21 25.7	8 9 42.00	+19 27 46.1	7.9	7.5	0.54
17	20 52.4	4 38 56.23	19 0 9.7	11.1	10.8	0.76	Sept 1	21 26.6	8 14 33.97	19 16 17.1	7.8	7.5	0.53
18	20 52.7	4 43 11.44	19 10 24.7	11.0	10.7	0.75	2	21 27.5	8 19 25.69	19 4 15.7	7.8	7.5	0.53
19	20 53.1	4 47 28.45	19 20 22.1	10.9	10.6	0.75	3	21 28.4	8 24 17.14	18 51 42.2	7.7	7.4	0.53
20	20 53.4	4 51 47.21	19 30 1.3	10.8	10.5	0.74	4	21 29.3	8 29 8.29	18 38 36.9	7.7	7.4	0.52
21	20 53.8	4 56 7.73	+19 39 21.3	10.7	10.4	0.74	5	21 30.2	8 33 59.12	+18 24 59.7	7.6	7.4	0.52
22	20 54.2	5 0 29.90	19 48 21.4	10.6	10.3	0.73	6	21 31.1	8 38 49.58	18 10 51.3	7.6	7.3	0.51
23	20 54.6	5 4 53.71	19 57 0.8	10.5	10.2	0.72	7	21 32.0	8 43 39.67	17 56 11.9	7.5	7.3	0.51
24	20 55.1	5 9 19.13	20 5 18.7	10.4	10.1	0.72	8	21 32.9	8 48 29.35	17 41 1.8	7.5	7.3	0.51
25	20 55.6	5 13 46.09	20 13 14.1	10.3	10.0	0.71	9	21 33.7	8 53 18.61	17 25 21.5	7.4	7.2	0.50
26	20 56.1	5 18 14.54	+20 20 46.9	10.2	9.9	0.70	10	21 34.6	8 58 7.42	+17 9 11.2	7.4	7.2	0.50
27	20 56.7	5 22 44.46	20 27 55.8	10.2	9.8	0.70	11	21 35.5	9 2 55.78	16 52 31.3	7.3	7.1	0.49
28	20 57.3	5 27 15.80	20 34 40.4	10.1	9.7	0.69	12	21 36.4	9 7 43.67	16 35 22.2	7.3	7.1	0.49
29	20 57.9	5 31 48.51	20 41 0.0	10.0	9.6	0.69	13	21 37.2	9 12 31.06	16 17 44.3	7.3	7.1	0.49
30	20 58.5	5 36 22.56	20 46 54.0	9.9	9.5	0.68	14	21 38.1	9 17 17.95	15 59 38.1	7.2	7.0	0.48
31	20 59.2	5 40 57.83	+20 52 [illegible]	9.8	9.4	0.67	15	21 38.9	9 22 4.31	+15 41 4.1	7.2	7.0	0.48
Aug 1	20 59.9	5 45 34.67	20 57 [illegible]	9.8	9.4	0.67	16	21 39.7	9 26 50.15	15 22 2.9	7.2	6.9	0.48
2	21 0.6	5 50 12.25	21 1 [illegible]	9.7	9.3	0.66	17	21 40.5	9 31 35.46	15 2 34.9	7.1	6.9	0.48
3	21 1.3	5 54 51.19	21 6 2.3	9.6	9.2	0.66	18	21 41.3	9 36 20.21	14 42 40.6	7.1	6.9	0.47
4	21 2.0	5 59 31.23	21 9 59.7	9.5	9.2	0.65	19	21 42.2	9 41 4.44	14 22 20.6	7.1	6.8	0.47
5	21 2.8	6 4 12.11	+21 12 48.2	9.4	9.1	0.65	20	21 43.0	9 45 48.10	+14 1 35.3	7.0	6.8	0.47
6	21 3.6	6 8 54.46	21 15 27.1	9.4	9.0	0.64	21	21 43.8	9 50 31.19	13 40 25.3	7.0	6.8	0.46
7	21 4.3	6 13 37.96	21 17 56.6	9.3	8.9	0.64	22	21 44.5	9 55 13.71	13 18 51.2	7.0	6.7	0.46
8	21 5.1	6 18 21.52	21 19 [illegible]	9.2	8.9	0.64	23	21 45.2	9 59 55.66	12 56 55.7	6.9	6.7	0.46
9	21 5.9	6 23 6.51	21 20 24.1	9.1	8.8	0.63	24	21 45.[illegible]	10 4 37.06	12 34 33.3	6.9	6.7	0.46
10	21 6.7	6 27 52.27	+21 21 1.4	9.1	8.7	0.63	25	21 46.6	10 9 17.[illegible]	+12 11 50.5	6.9	6.6	0.45
11	21 7.5	6 32 38.84	21 21 7.1	9.0	8.7	0.62	26	21 47.1	10 13 58.17	11 48 46.1	6.8	6.6	0.45
12	21 8.3	6 37 26.17	21 20 42.4	9.0	8.6	0.62	27	21 48.[illegible]	10 18 37.91	11 25 20.8	6.8	6.6	0.45
13	21 9.1	6 42 14.21	21 19 43.4	8.9	8.6	0.61	28	21 48.7	10 23 17.11	11 1 35.1	6.8	6.5	0.45
14	21 10.0	6 47 2.9[illegible]	21 18 [illegible]	8.8	8.5	0.61	29	21 49.6	10 27 55.77	10 37 29.5	6.8	6.5	0.44
15	21 10.9	6 51 52.12	+21 16 [illegible]	8.8	8.4	0.61	30	21 50.1	10 32 33.9[illegible]	+10 13 4.8	6.7	6.5	0.44
16	21 11.8	6 56 42.04	+21 13 34.1	8.7	8.4	0.60	[illegible]	21 50.9	10 37 11.[illegible]	9 48 21.5	6.7	6.4	0.44

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct. 1	21 50.8	10 37 11.56	+ 9 48 21.5	6.7	6.4	0.44	Nov. 16	22 21.2	14 8 58.41	−11 25 39.1	5.7	5.6	0.38
2	21 51.5	10 41 48.72	9 23 20.3	6.6	6.4	0.43	17	22 22.0	14 13 45.58	11 51 44.2	5.7	5.5	0.38
3	21 52.2	10 46 25.42	8 58 1.9	6.6	6.4	0.43	18	22 22.9	14 18 33.76	12 17 32.7	5.7	5.5	0.38
4	21 52.9	10 51 1.68	8 32 26.8	6.6	6.4	0.43	19	22 23.8	14 23 22.96	12 43 4.4	5.7	5.5	0.38
5	21 53.5	10 55 37.52	8 6 35.8	6.6	6.3	0.43	20	22 24.7	14 28 13.20	13 8 17.9	5.7	5.5	0.38
6	21 54.2	11 0 12.96	+ 7 40 29.4	6.6	6.3	0.43	21	22 25.6	14 33 4.51	−13 33 12.4	5.7	5.5	0.38
7	21 54.8	11 4 48.02	7 14 8.3	6.5	6.3	0.42	22	22 26.5	14 37 56.91	13 57 47.3	5.7	5.5	0.38
8	21 55.5	11 9 22.73	6 47 33.3	6.5	6.3	0.42	23	22 27.4	14 42 50.41	14 22 1.6	5.6	5.5	0.38
9	21 56.1	11 13 57.12	6 20 44.9	6.5	6.3	0.42	24	22 28.4	14 47 45.01	14 45 54.5	5.6	5.5	0.38
10	21 56.7	11 18 31.22	5 53 43.7	6.5	6.2	0.42	25	22 29.4	14 52 40.73	15 9 25.3	5.6	5.4	0.38
11	21 57.3	11 23 5.08	+ 5 26 30.5	6.4	6.2	0.42	26	22 30.4	14 57 37.60	−15 32 33.2	5.6	5.4	0.38
12	21 57.9	11 27 38.69	4 59 6.0	6.4	6.2	0.41	27	22 31.4	15 2 35.63	15 55 17.3	5.6	5.4	0.38
13	21 58.5	11 32 12.09	4 31 30.7	6.4	6.2	0.41	28	22 32.4	15 7 34.83	16 17 36.7	5.6	5.4	0.38
14	21 59.1	11 36 45.32	4 3 45.5	6.4	6.2	0.41	29	22 33.4	15 12 35.20	16 39 30.8	5.6	5.4	0.38
15	21 59.7	11 41 18.41	3 35 50.9	6.3	6.1	0.41	30	22 34.5	15 17 36.75	17 0 58.9	5.6	5.4	0.38
16	22 0.3	11 45 51.39	+ 3 7 47.7	6.3	6.1	0.41	Dec. 1	22 35.6	15 22 39.48	−17 22 0.1	5.6	5.4	0.38
17	22 0.9	11 50 24.29	2 39 36.6	6.3	6.1	0.40	2	22 36.8	15 27 43.40	17 42 33.7	5.6	5.4	0.38
18	22 1.5	11 54 57.14	2 11 18.4	6.3	6.1	0.40	3	22 38.0	15 32 48.53	18 2 38.8	5.5	5.4	0.37
19	22 2.2	11 59 29.96	1 42 53.8	6.3	6.1	0.40	4	22 39.2	15 37 54.87	18 22 14.7	5.5	5.3	0.37
20	22 2.8	12 4 2.79	1 14 23.6	6.2	6.0	0.40	5	22 40.4	15 43 2.38	18 41 20.6	5.5	5.3	0.37
21	22 3.4	12 8 35.66	+ 0 45 48.5	6.2	6.0	0.40	6	22 41.6	15 48 11.08	−18 59 55.8	5.5	5.3	0.37
22	22 4.0	12 13 8.61	+ 0 17 9.1	6.2	6.0	0.40	7	22 42.8	15 53 20.96	19 17 59.6	5.5	5.3	0.37
23	22 4.6	12 17 41.67	− 0 11 33.8	6.2	6.0	0.40	8	22 44.0	15 58 32.01	19 35 31.3	5.5	5.3	0.37
24	22 5.2	12 22 14.89	0 40 19.4	6.1	6.0	0.40	9	22 45.2	16 3 44.23	19 52 30.2	5.5	5.3	0.37
25	22 5.8	12 26 48.27	1 9 7.0	6.1	5.9	0.39	10	22 46.5	16 8 57.60	20 8 55.6	5.5	5.3	0.37
26	22 6.4	12 31 21.86	− 1 37 55.8	6.1	5.9	0.39	11	22 47.8	16 14 12.10	−20 24 46.7	5.5	5.3	0.37
27	22 7.0	12 35 55.69	2 6 45.1	6.1	5.9	0.39	12	22 49.1	16 19 27.71	20 40 2.9	5.5	5.3	0.37
28	22 7.6	12 40 29.79	2 35 34.1	6.1	5.9	0.39	13	22 50.4	16 24 44.41	20 54 43.5	5.4	5.3	0.37
29	22 8.2	12 45 4.20	3 4 22.2	6.0	5.9	0.39	14	22 51.8	16 30 2.17	21 8 47.9	5.4	5.2	0.37
30	22 8.8	12 49 38.95	3 33 8.5	6.0	5.8	0.39	15	22 53.1	16 35 20.96	21 22 15.4	5.4	5.2	0.37
31	22 9.5	12 54 14.10	− 4 1 52.3	6.0	5.8	0.39	16	22 54.5	16 40 40.75	−21 35 5.5	5.4	5.2	0.37
Nov. 1	22 10.1	12 58 49.67	4 30 32.8	6.0	5.8	0.39	17	22 55.9	16 46 1.51	21 47 17.4	5.4	5.2	0.37
2	22 10.8	13 3 25.69	4 59 9.4	6.0	5.8	0.39	18	22 57.3	16 51 23.19	21 58 50.7	5.4	5.2	0.37
3	22 11.5	13 8 2.20	5 27 41.2	6.0	5.8	0.39	19	22 58.7	16 56 45.76	22 9 44.9	5.4	5.2	0.37
4	22 12.2	13 12 39.24	5 56 7.6	5.9	5.7	0.38	20	23 0.2	17 2 9.18	22 19 59.5	5.4	5.2	0.37
5	22 12.9	13 17 16.85	− 6 24 27.7	5.9	5.7	0.38	21	23 1.6	17 7 33.39	−22 29 34.0	5.4	5.2	0.37
6	22 13.5	13 21 55.07	6 52 40.8	5.9	5.7	0.38	22	23 3.1	17 12 58.35	22 38 27.9	5.4	5.2	0.37
7	22 14.2	13 26 33.93	7 20 46.2	5.9	5.7	0.38	23	23 4.6	17 18 24.01	22 46 40.8	5.4	5.2	0.37
8	22 14.9	13 31 13.47	7 48 43.1	5.9	5.7	0.38	24	23 6.1	17 23 50.31	22 54 12.1	5.4	5.2	0.37
9	22 15.7	13 35 53.73	8 16 30.7	5.9	5.6	0.38	25	23 7.6	17 29 17.20	23 1 1.5	5.4	5.2	0.37
10	22 16.5	13 40 34.73	− 8 44 8.3	5.8	5.6	0.38	26	23 9.1	17 34 44.60	−23 7 8.8	5.3	5.2	0.37
11	22 17.3	13 45 16.52	9 11 35.1	5.8	5.6	0.38	27	23 10.6	17 40 12.47	23 12 33.7	5.3	5.2	0.37
12	22 18.1	13 49 59.14	9 38 50.3	5.8	5.6	0.38	28	23 12.1	17 45 40 75	23 17 15.9	5.3	5.1	0.37
13	22 18.9	13 54 42.61	10 5 53.1	5.8	5.6	0.38	29	23 13.6	17 51 9.39	23 21 15.2	5.3	5.1	0.37
14	22 19.6	13 59 26.96	10 32 42.7	5.8	5.6	0.38	30	23 15.2	17 56 38.33	23 24 31.2	5.3	5.1	0.37
15	22 20.4	14 4 12.22	−10 59 18.3	5.8	5.6	0.38	31	23 16.7	18 2 7.50	23 27 3.8	5.3	5.1	0.37
16	22 21.2	14 8 58.41	−11 25 39.1	5.7	5.6	0.38	32	23 18.3	18 7 36.84	−23 28 53.0	5.3	5.1	0.37

FOR TRANSIT AT WASHINGTON.

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
Jan 0	10 1.0	4 45 7.66	+25 23 4.1	14.0	7.9	0.59
1	9 56.2	4 44 15.18	25 21 51.8	13.9	7.9	0.58
2	9 51.4	4 43 26.28	25 20 40.7	13.7	7.8	0.58
3	9 46.7	4 42 41.00	25 19 31.6	13.6	7.7	0.57
4	9 42.1	4 41 59.32	25 18 24.6	13.5	7.7	0.57
5	9 37.6	4 41 21.27	+25 17 20.1	13.3	7.6	0.56
6	9 33.1	4 40 46.90	25 16 18.5	13.2	7.5	0.56
7	9 28.6	4 40 16.11	25 15 20.0	13.1	7.4	0.55
8	9 24.2	4 39 49.00	25 14 24.9	13.0	7.4	0.55
9	9 19.9	4 39 25.54	25 13 33.5	12.8	7.3	0.54
10	9 15.7	4 39 5.68	+25 12 45.9	12.7	7.2	0.54
11	9 11.4	4 38 49.40	25 12 2.2	12.6	7.2	0.53
12	9 7.3	4 38 36.67	25 11 22.8	12.5	7.1	0.52
13	9 3.2	4 38 27.45	25 10 47.8	12.3	7.0	0.52
14	8 59.2	4 38 21.69	25 10 17.0	12.2	6.9	0.51
15	8 55.2	4 38 19.34	+25 9 50.6	12.1	6.9	0.51
16	8 51.3	4 38 20.38	25 9 28.5	12.0	6.8	0.50
17	8 47.5	4 38 24.74	25 9 11.0	11.9	6.7	0.50
18	8 43.7	4 38 32.37	25 8 58.0	11.7	6.7	0.49
19	8 39.9	4 38 43.23	25 8 49.4	11.6	6.6	0.49
20	8 36.1	4 38 57.26	+25 8 45.2	11.5	6.5	0.48
21	8 32.5	4 39 14.41	25 8 45.1	11.4	6.5	0.48
22	8 28.9	4 39 34.64	25 8 49.4	11.2	6.4	0.47
23	8 25.4	4 39 57.88	25 8 58.2	11.1	6.3	0.47
24	8 21.9	4 40 24.09	25 9 10.8	11.0	6.3	0.46
25	8 18.4	4 40 53.22	+25 9 27.7	10.9	6.2	0.46
26	8 15.1	4 41 25.22	25 9 48.5	10.8	6.1	0.45
27	8 11.7	4 42 0.06	25 10 13.2	10.7	6.1	0.45
28	8 8.4	4 42 37.68	25 10 41.2	10.6	6.0	0.44
29	8 5.1	4 43 18.02	25 11 12.9	10.5	6.0	0.44
30	8 1.9	4 44 1.64	+25 11 48.0	10.4	5.9	0.43
31	7 58.7	4 44 46.[illegible]	25 12 26.4	10.3	5.9	0.43
Feb 1	7 55.6	4 45 34.86	25 13 7.8	10.2	5.8	0.42
2	7 52.5	4 46 25.75	25 13 [illegible]	[illegible]	5.7	0.42
3	7 49.5	4 47 19.[illegible]	25 14 [illegible]	[illegible]	5.7	0.41
4	7 46.5	4 48 14.7	+25 15 [illegible]	[illegible]	5.6	0.41
5	7 43.5	4 49 12.[illegible]	25 16 [illegible]	9.8	5.6	0.41
6	7 40.[illegible]	4 50 13.[illegible]	25 17 14.1	9.[illegible]	5.5	0.41
7	7 37.[illegible]	4 51 15.[illegible]	25 18 [illegible]	9.[illegible]	5.4	0.40
8	7 34.8	4 52 [illegible]	25 19 [illegible]	[illegible]	5.4	0.40
9	7 3[illegible]	4 53 [illegible]	+25 21 [illegible]	9.6	5.3	[illegible]
10	7 2[illegible]	4 54 [illegible]	25 21 [illegible]	[illegible]	5.3	[illegible]
11	[illegible]	4 55 [illegible]	25 22 [illegible]	[illegible]	5.2	[illegible]
12	7 2[illegible]	4 5[illegible]	25 23 [illegible]	[illegible]	5.2	[illegible]
13	7 21.1	4 58 1[illegible]	25 24 11.[illegible]	[illegible]	5.1	0.38
14	7 1[illegible]	4 59 55.32	+25 25 14.[illegible]	[illegible]	5.[illegible]	0.38
15	[illegible]	[illegible]	[illegible]	[illegible]	5.[illegible]	[illegible]

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
Feb 14	7 18.5	4 59 55.92	+25 25 14.3	8.9	5.1	0.38
15	7 15.8	5 0 52.21	25 26 17.4	8.8	5.0	0.37
16	7 11.[illegible]	5 2 11.[illegible]	25 27 2[illegible].4	8.7	5.0	0.37
17	7 1[illegible]	5 3 36.11	25 28 23.1	8.6	4.9	0.37
18	7 8.[illegible]	5 5 0.[illegible]1	25 29 2[illegible].4	8.5	4.9	0.36
19	7 5.[illegible]	5 6 26.[illegible]2	+25 30 27.0	8.4	4.8	0.36
20	7 3.2	5 7 54.2[illegible]	25 31 27.7	8.4	4.8	0.36
21	7 0.5	5 9 23.56	25 32 27.3	8.3	4.7	0.36
22	6 58.3	5 10 54.41	25 33 25.9	8.2	4.7	0.35
23	6 55.[illegible]	5 12 26.8[illegible]	25 34 23.0	8.2	4.7	0.35
24	6 53.6	5 14 0.[illegible]	+25 35 18.6	8.1	4.6	0.35
25	6 51.2	5 15 36.18	25 36 12.3	8.0	4.6	0.35
26	6 48.9	5 17 13.06	25 37 4.0	8.0	4.6	0.34
27	6 46.6	5 18 51.58	25 37 55.5	7.9	4.5	0.34
28	6 44.3	5 20 31.10	25 38 40.6	7.8	4.5	0.34
Mar 1	6 42.1	5 22 12.[illegible]	+25 39 25.1	7.8	4.5	0.33
2	6 39.8	5 23 54.[illegible]	25 40 6.8	7.7	4.4	0.33
3	6 37.6	5 25 38.32	25 40 45.7	7.6	4.4	0.33
4	6 35.5	5 27 23.31	25 41 21.4	7.6	4.4	0.32
5	6 33.3	5 29 9.55	25 41 53.[illegible]	7.5	4.3	0.32
6	6 31.1	5 30 57.[illegible]	+25 42 22.9	7.5	4.3	0.32
7	6 29.0	5 32 45.[illegible]4	25 42 48.3	7.4	4.3	0.32
8	6 26.9	5 34 35.43	25 43 [illegible]	7.4	4.2	0.31
9	6 24.8	5 36 26.[illegible]4	25 43 2[illegible]	7.3	4.2	0.31
10	6 22.[illegible]	5 38 18.34	25 43 41.2	7.2	4.2	0.31
11	6 20.[illegible]	5 40 11.[illegible]	+25 43 50.6	7.2	4.1	0.30
12	6 18.[illegible]	5 42 5.47	25 43 55.6	7.1	4.1	0.30
13	6 16.[illegible]	5 44 0.54	25 43 5[illegible].0	7.0	4.1	0.30
14	6 14.6	5 45 56.5[illegible]	25 43 51.6	7.0	4.0	0.30
15	6 12.6	5 47 53.1[illegible]	25 43 42.5	6.9	4.0	0.29
16	6 10.7	5 49 51.4[illegible]	+25 43 28.4	6.9	4.0	0.29
17	6 8.[illegible]	5 51 5[illegible]	25 43 9.1	6.8	3.9	0.29
18	6 6.[illegible]	5 53 4[illegible]	25 42 44.[illegible]	6.8	3.9	0.29
19	6 4.8	5 55 5[illegible]	25 42 15.[illegible]	6.7	3.9	0.29
20	6 2.9	5 57 51.[illegible]	25 41 3[illegible]	6.7	3.8	0.28
21	6 1.0	5 59 5[illegible]	+25 41 [illegible]	6.6	3.8	0.28
22	5 59.1	6 1 5[illegible]	25 40 12.[illegible]	6.6	3.8	0.28
23	5 57.2	6 4 0.24	25 39 33.3	6.5	3.8	0.28
24	5 55.4	6 6 4.[illegible]	25 38 22.2	6.5	3.7	0.28
25	5 53.5	6 8 [illegible]	25 37 25.1	6.4	3.7	0.27
26	5 51.7	6 10 15.4[illegible]	+25 36 7.[illegible]	6.4	3.7	0.27
27	5 49.9	6 12 21.[illegible]	25 34 51.2	6.3	3.6	0.27
28	5 48.1	6 14 2[illegible].14	25 33 2[illegible].3	6.3	3.6	0.27
29	5 46.[illegible]	6 1[illegible]	25 31 5[illegible]	6.2	3.6	0.27
30	5 44.4	6 18 4[illegible]	25 30 [illegible]	6.2	3.5	0.26
31	5 42.[illegible]	6 2[illegible]	+25 28 4.[illegible]	6.1	3.5	0.26
32	5 4[illegible]	6 2[illegible]	25 2[illegible] 31.5	6.1	3.5	0.26

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Jan. 0	16 3.3	10 48 25.94	+ 8 50 11.7	1.8	19.5	1.40	Feb. 15	12 48.0	10 33 56.67	+10 27 24.4	2.0	21.3	1.54
1	15 59.3	10 48 20.95	8 50 59.6	1.9	19.6	1.40	16	12 43.6	10 33 27.68	10 30 22.2	2.0	21.3	1.54
2	15 55.3	10 48 15.25	8 51 51.7	1.9	19.6	1.41	17	12 39.2	10 32 58.54	10 33 20.5	2.0	21.3	1.54
3	15 51.2	10 48 8.82	8 52 48.1	1.9	19.7	1.41	18	12 34.7	10 32 29.26	10 36 18.9	2.0	21.3	1.54
4	15 47.2	10 48 1.67	8 53 48.9	1.9	19.7	1.42	19	12 30.3	10 31 59.87	10 39 17.4	2.0	21.3	1.54
5	15 43.1	10 47 53.79	+ 8 54 54.0	1.9	19.8	1.42	20	12 25.9	10 31 30.38	+10 42 15.8	2.0	21.3	1.54
6	15 39.0	10 47 45.21	8 56 3.2	1.9	19.8	1.42	21	12 21.5	10 31 0.83	10 45 14.2	2.0	21.3	1.54
7	15 34.9	10 47 35.92	8 57 16.6	1.9	19.9	1.43	22	12 17.1	10 30 31.21	10 48 12.3	2.0	21.3	1.54
8	15 30.8	10 47 25.93	8 58 34.1	1.9	19.9	1.43	23	12 12.6	10 30 1.56	10 51 9.9	2.0	21.3	1.54
9	15 26.7	10 47 15.24	8 59 55.8	1.9	20.0	1.44	24	12 8.2	10 29 31.91	10 54 7.0	2.0	21.3	1.54
10	15 22.6	10 47 3.87	+ 9 1 21.5	1.9	20.0	1.44	25	12 3.8	10 29 2.28	+10 57 3.7	2.0	21.3	1.54
11	15 18.5	10 46 51.82	9 2 51.1	1.9	20.1	1.45	26	11 59.4	10 28 32.69	10 59 59.5	2.0	21.3	1.54
12	15 14.3	10 46 39.08	9 4 24.7	1.9	20.1	1.45	27	11 54.9	10 28 3.14	11 2 54.2	2.0	21.3	1.54
13	15 10.2	10 46 25.67	9 6 2.1	1.9	20.2	1.45	28	11 50.5	10 27 33.67	11 5 47.9	2.0	21.3	1.54
14	15 6.0	10 46 11.60	9 7 43.3	1.9	20.2	1.46	Mar. 1	11 46.1	10 27 4.30	11 8 40.6	2.0	21.3	1.54
15	15 1.8	10 45 56.88	+ 9 9 28.3	1.9	20.3	1.46	2	11 41.7	10 26 35.05	+11 11 32.0	2.0	21.3	1.54
16	14 57.7	10 45 41.51	9 11 17.1	1.9	20.3	1.47	3	11 37.3	10 26 5.95	11 14 21.9	2.0	21.3	1.54
17	14 53.5	10 45 25.49	9 13 9.5	1.9	20.4	1.47	4	11 32.9	10 25 37.01	11 17 10.3	2.0	21.3	1.54
18	14 49.2	10 45 8.84	9 15 5.4	1.9	20.4	1.47	5	11 28.5	10 25 8.26	11 19 57.1	2.0	21.3	1.54
19	14 45.0	10 44 51.57	9 17 4.7	1.9	20.5	1.47	6	11 24.1	10 24 39.73	11 22 42.0	2.0	21.3	1.54
20	14 40.8	10 44 33.70	+ 9 19 7.6	1.9	20.5	1.48	7	11 19.7	10 24 11.43	+11 25 25.0	2.0	21.3	1.54
21	14 36.6	10 44 15.21	9 21 13.9	1.9	20.5	1.48	8	11 15.3	10 23 43.37	11 28 5.9	2.0	21.2	1.54
22	14 32.3	10 43 56.13	9 23 23.5	2.0	20.6	1.48	9	11 10.9	10 23 15.59	11 30 44.9	2.0	21.2	1.54
23	14 28.1	10 43 36.48	9 25 36.2	2.0	20.6	1.48	10	11 6.5	10 22 48.12	11 33 21.6	2.0	21.2	1.53
24	14 23.8	10 43 16.24	9 27 52.0	2.0	20.6	1.49	11	11 2.1	10 22 20.95	11 35 55.9	2.0	21.2	1.53
25	14 19.5	10 42 55.44	+ 9 30 11.1	2.0	20.7	1.49	12	10 57.7	10 21 54.09	+11 38 27.8	2.0	21.1	1.53
26	14 15.2	10 42 34.10	9 32 33.0	2.0	20.7	1.49	13	10 53.3	10 21 27.56	11 40 57.4	2.0	21.1	1.53
27	14 10.9	10 42 12.23	9 34 57.8	2.0	20.8	1.49	14	10 49.0	10 21 1.42	11 43 24.4	2.0	21.1	1.53
28	14 6.7	10 41 49.84	9 37 25.4	2.0	20.8	1.50	15	10 44.6	10 20 35.66	11 45 48.6	2.0	21.1	1.53
29	14 2.3	10 41 26.93	9 39 55.7	2.0	20.9	1.50	16	10 40.3	10 20 10.29	11 48 10.0	2.0	21.0	1.53
30	13 58.0	10 41 3.53	+ 9 42 28.4	2.0	20.9	1.50	17	10 35.9	10 19 45.34	+11 50 28.8	2.0	21.0	1.52
31	13 53.7	10 40 39.66	9 45 3.7	2.0	20.9	1.50	18	10 31.6	10 19 20.82	11 52 44.6	2.0	21.0	1.52
Feb. 1	13 49.4	10 40 15.33	9 47 41.4	2.0	21.0	1.51	19	10 27.2	10 18 56.73	11 54 57.4	2.0	20.9	1.52
2	13 45.0	10 39 50.55	9 50 21.4	2.0	21.0	1.51	20	10 22.9	10 18 33.10	11 57 7.2	2.0	20.9	1.52
3	13 40.7	10 39 25.34	9 53 3.3	2.0	21.0	1.51	21	10 18.6	10 18 9.94	11 59 13.9	2.0	20.9	1.51
4	13 36.3	10 38 59.73	+ 9 55 47.1	2.0	21.0	1.51	22	10 14.3	10 17 47.27	+12 1 17.5	2.0	20.8	1.51
5	13 32.0	10 38 33.74	9 58 32.9	2.0	21.0	1.52	23	10 10.0	10 17 25.10	12 3 17.8	2.0	20.8	1.51
6	13 27.6	10 38 7.37	10 1 20.3	2.0	21.1	1.52	24	10 5.7	10 17 3.45	12 5 14.9	2.0	20.7	1.50
7	13 23.2	10 37 40.66	10 4 9.3	2.0	21.1	1.52	25	10 1.4	10 16 42.31	12 7 8.6	2.0	20.7	1.50
8	13 18.8	10 37 13.62	10 6 59.8	2.0	21.1	1.52	26	9 57.1	10 16 21.70	12 8 59.0	2.0	20.7	1.50
9	13 14.4	10 36 46.26	+10 9 51.8	2.0	21.2	1.53	27	9 52.9	10 16 1.66	+12 10 45.8	1.9	20.6	1.50
10	13 10.0	10 36 18.61	10 12 45.0	2.0	21.2	1.53	28	9 48.6	10 15 42.19	12 12 29.1	1.9	20.6	1.49
11	13 5.6	10 35 50.69	10 15 39.2	2.0	21.2	1.53	29	9 44.4	10 15 23.29	12 14 8.8	1.9	20.5	1.49
12	13 1.2	10 35 22.52	10 18 34.3	2.0	21.2	1.53	30	9 40.1	10 15 4.99	12 15 44.9	1.9	20.5	1.49
13	12 56.8	10 34 54.11	10 21 30.4	2.0	21.2	1.54	31	9 35.9	10 14 47.20	12 17 17.3	1.9	20.5	1.49
14	12 52.4	10 34 25.40	+10 24 27.2	2.0	21.3	1.54	Apr. 1	9 31.7	10 14 30.10	+12 18 45.9	1.9	20.4	1.48
15	12 48.0	10 33 56.67	+10 27 24.4	2.0	21.3	1.54	2	9 27.5	10 14 13.71	+12 20 10.7	1.9	20.4	1.48

FOR TRANSIT AT WASHINGTON.

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
Apr 1	9 31.7	10 14 30.19	+12 18 45.9	1.9	20.4	1.48
2	9 27.5	10 14 13.71	12 20 10.7	1.9	20.4	1.48
3	9 23.3	10 13 57.87	12 21 31.7	1.9	20.3	1.47
4	9 19.1	10 13 42.69	12 22 48.9	1.9	20.3	1.47
5	9 14.9	10 13 28.15	12 24 2.2	1.9	20.2	1.47
6	9 10.8	10 13 14.26	+12 25 11.7	1.9	20.2	1.46
7	9 6.6	10 13 1.02	12 26 17.2	1.9	20.1	1.46
8	9 2.5	10 12 48.44	12 27 18.8	1.9	20.1	1.46
9	8 58.4	10 12 36.54	12 28 16.3	1.9	20.0	1.45
10	8 54.2	10 12 25.31	12 29 10.0	1.9	20.0	1.45
11	8 50.1	10 12 14.77	+12 29 59.6	1.9	19.9	1.44
12	8 46.0	10 12 4.92	12 30 45.2	1.9	19.9	1.44
13	8 42.0	10 11 55.75	12 31 26.9	1.9	19.8	1.44
14	8 37.9	10 11 47.27	12 32 4.7	1.9	19.8	1.43
15	8 33.8	10 11 39.48	12 32 38.4	1.9	19.7	1.43
16	8 29.8	10 11 32.39	+12 33 8.2	1.9	19.7	1.43
17	8 25.7	10 11 26.01	12 33 34.1	1.9	19.6	1.42
18	8 21.7	10 11 20.32	12 33 56.0	1.9	19.6	1.42
19	8 17.7	10 11 15.33	12 34 13.9	1.8	19.5	1.41
20	8 13.7	10 11 11.04	12 34 27.6	1.8	19.4	1.41
21	8 9.7	10 11 7.45	+12 34 37.5	1.8	19.4	1.41
22	8 5.7	10 11 4.56	12 34 43.5	1.8	19.3	1.40
23	8 1.7	10 11 2.37	12 34 45.5	1.8	19.2	1.40
24	7 57.8	10 11 0.88	12 34 43.5	1.8	19.2	1.40
25	7 53.8	10 11 0.10	12 34 37.5	1.8	19.1	1.39
26	7 49.9	10 11 0.01	+12 34 27.7	1.8	19.1	1.39
27	7 46.0	10 11 0.65	12 34 13.8	1.8	19.0	1.38
28	7 42.1	10 11 1.98	12 33 56.0	1.8	19.0	1.38
29	7 38.2	10 11 4.01	12 33 34.3	1.8	18.9	1.38
30	7 34.3	10 11 6.74	12 33 8.6	1.8	18.9	1.37
May 1	7 30.4	10 11 10.18	+12 32 38.9	1.8	18.8	1.37
2	7 26.5	10 11 14.31	12 32 5.3	1.8	18.8	1.36
3	7 22.7	10 11 19.13	12 31 27.9	1.8	18.7	1.36
4	7 18.9	10 11 24.65	12 30 46.7	1.8	18.7	1.35
5	7 15.0	10 11 30.85	12 30 1.7	1.8	18.6	1.35
6	7 11.2	10 11 37.71	+12 29 12.9	1.7	18.6	1.35
7	7 7.4	10 11 45.29	12 28 20.3	1.7	18.5	1.34
8	7 3.6	10 11 53.53	12 27 23.5	1.7	18.5	1.34
9	6 59.8	10 12 2.44	12 26 23.6	1.7	18.4	1.34
10	6 56.1	10 12 12.01	12 25 19.8	1.7	18.4	1.33
11	6 52.3	10 12 22.21	+12 24 12.3	1.7	18.3	1.33
12	6 48.6	10 12 33.13	12 23 1.1	1.7	18.3	1.32
13	6 44.8	10 12 44.66	12 21 46.3	1.7	18.2	1.32
14	6 41.1	10 12 56.85	12 20 27.9	1.7	18.1	1.31
15	6 37.4	10 13 9.64	12 19 6.0	1.7	18.1	1.31
16	6 33.6	10 13 23.09	+12 17 40.5	1.7	18.0	1.30
17	6 29.9	10 13 37.16	+12 16 11.7	1.7	17.9	1.30

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
May 17	6 29.9	10 13 37.16	+12 16 11.7	1.7	17.9	1.30
18	6 26.3	10 13 51.85	12 14 39.3	1.7	17.9	1.29
19	6 22.6	10 14 7.14	12 13 3.4	1.7	17.8	1.29
20	6 18.9	10 14 23.05	12 11 24.2	1.7	17.8	1.29
21	6 15.2	10 14 39.58	12 9 41.5	1.7	17.7	1.28
22	6 11.6	10 14 56.69	+12 7 55.3	1.7	17.7	1.28
23	6 8.0	10 15 14.39	12 6 6.1	1.6	17.6	1.28
24	6 4.3	10 15 32.66	12 4 13.3	1.6	17.6	1.27
25	6 0.7	10 15 51.50	12 2 17.3	1.6	17.5	1.27
26	5 57.1	10 16 11.02	12 0 18.1	1.6	17.5	1.27
27	5 53.5	10 16 31.05	+11 58 15.3	1.6	17.4	1.27
28	5 49.9	10 16 51.65	11 56 9.4	1.6	17.4	1.26
29	5 46.3	10 17 12.81	11 54 0.3	1.6	17.3	1.26
30	5 42.8	10 17 34.52	11 51 48.1	1.6	17.3	1.26
31	5 39.2	10 17 56.77	+11 49 32.7	1.6	17.2	1.25
Dec 1	19 38.1	12 24 37.45	1 21 25.8	1.5	16.2	1.16
2	19 34.7	12 25 9.04	1 24 35.5	1.5	16.3	1.16
3	19 31.3	12 25 40.80	1 27 44.3	1.5	16.3	1.16
4	19 27.9	12 26 10.91	1 30 42.1	1.5	16.3	1.16
5	19 24.5	12 26 41.17	1 33 [illegible]	1.5	16.4	1.16
6	19 21.0	12 27 10.98	1 36 49.8	1.5	16.4	1.17
7	19 17.6	12 27 40.33	1 39 44.6	1.6	16.4	1.17
8	19 14.1	12 28 9.20	1 42 36.7	1.6	16.5	1.17
9	19 10.7	12 28 37.59	1 45 25.6	1.6	16.5	1.17
10	19 7.2	12 29 5.52	1 48 11.3	1.6	16.6	1.18
11	19 3.7	12 29 32.96	−1 50 53.6	1.6	16.6	1.18
12	19 0.2	12 29 59.90	1 53 32.5	1.6	16.6	1.18
13	18 56.7	12 30 26.34	1 56 8.0	1.6	16.7	1.18
14	18 53.3	12 30 52.28	1 58 40.0	1.6	16.7	1.19
15	18 49.7	12 31 17.71	2 1 8.0	1.6	16.8	1.19
16	18 46.2	12 31 42.61	−2 3 33.6	1.6	16.8	1.19
17	18 42.7	12 32 6.97	2 5 55.1	1.6	16.9	1.20
18	18 39.2	12 32 30.80	2 8 12.9	1.6	16.9	1.20
19	18 35.6	12 32 54.09	2 10 27.0	1.6	17.0	1.21
20	18 32.1	12 33 16.82	2 12 37.3	1.6	17.0	1.21
21	18 28.5	12 33 38.99	2 14 43.2	1.6	17.1	1.21
22	18 24.9	12 34 0.61	2 16 47.7	1.6	17.1	1.22
23	18 21.3	12 34 21.66	2 18 45.7	1.6	17.2	1.22
24	18 17.7	12 34 42.15	2 20 40.8	1.6	17.2	1.22
25	18 14.1	12 35 2.05	2 22 32.0	1.6	17.3	1.23
26	18 10.5	12 35 21.32	2 24 19.6	1.6	17.3	1.23
27	18 6.9	12 35 40.12	2 26 2.8	1.6	17.4	1.24
28	18 3.3	12 35 58.11	2 27 42.2	1.6	17.4	1.24
29	17 59.7	12 36 15.59	2 29 17.6	1.6	17.5	1.24
30	17 56.1	12 36 32.47	2 30 49.7	1.6	17.5	1.25
31	17 52.5	12 36 48.73	−2 32 16.3	1.7	17.6	1.25
32	17 48.9	12 37 4.5[illegible]	2 33 39.5	1.7	17.6	1.26

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Feb. 14	18 11.7	15 54 33.89	−18 10 6.2	0.9	7.9	0.59	Apr. 1	15 10.8	15 54 32.47	−18 2 14.9	1.0	8.4	0.63
15	18 7.9	15 54 43.08	18 10 23.4	0.9	7.9	0.59	2	15 6.7	15 54 23.11	18 1 38.5	1.0	8.4	0.63
16	18 4.1	15 54 51.87	18 10 39.3	0.9	7.9	0.59	3	15 2.6	15 54 13.39	18 1 1.0	1.0	8.4	0.63
17	18 0.3	15 55 0.26	18 10 53.9	0.9	7.9	0.59	4	14 58.5	15 54 3.33	18 0 22.7	1.0	8.5	0.63
18	17 56.5	15 55 8.25	18 11 7.3	0.9	7.9	0.59	5	14 54.4	15 53 52.93	17 59 43.6	1.0	8.5	0.64
19	17 52.7	15 55 15.84	−18 11 19.5	0.9	7.9	0.59	6	14 50.3	15 53 42.19	−17 59 3.6	1.0	8.5	0.64
20	17 48.9	15 55 23.02	18 11 30.3	0.9	7.9	0.59	7	14 46.2	15 53 31.12	17 58 22.6	1.0	8.5	0.64
21	17 45.1	15 55 29.79	18 11 39.9	0.9	7.9	0.59	8	14 42.1	15 53 19.72	17 57 40.7	1.0	8.5	0.64
22	17 41.2	15 55 36.15	18 11 48.3	0.9	7.9	0.59	9	14 37.9	15 53 8.00	17 56 58.1	1.0	8.5	0.64
23	17 37.4	15 55 42.11	18 11 55.3	0.9	8.0	0.60	10	14 33.8	15 52 55.97	17 56 14.7	1.0	8.5	0.64
24	17 33.6	15 55 47.65	−18 12 1.1	0.9	8.0	0.60	11	14 29.7	15 52 43.64	−17 55 30.5	1.0	8.5	0.64
25	17 29.7	15 55 52.78	18 12 5.6	0.9	8.0	0.60	12	14 25.5	15 52 31.01	17 54 45.5	1.0	8.5	0.64
26	17 25.9	15 55 57.49	18 12 8.8	0.9	8.0	0.60	13	14 21.4	15 52 18.09	17 53 59.7	1.0	8.6	0.64
27	17 22.0	15 56 1.79	18 12 10.8	0.9	8.0	0.60	14	14 17.2	15 52 4.87	17 53 13.1	1.0	8.6	0.64
28	17 18.2	15 56 5.67	18 12 11.5	0.9	8.0	0.60	15	14 13.1	15 51 51.37	17 52 25.9	1.0	8.6	0.64
Mar. 1	17 14.3	15 56 9.14	−18 12 11.1	0.9	8.0	0.60	16	14 8.9	15 51 37.61	−17 51 38.0	1.0	8.6	0.64
2	17 10.4	15 56 12.18	18 12 9.4	0.9	8.0	0.60	17	14 4.7	15 51 23.59	17 50 49.4	1.0	8.6	0.64
3	17 6.5	15 56 14.80	18 12 6.4	0.9	8.1	0.61	18	14 0.6	15 51 9.29	17 50 0.0	1.0	8.6	0.64
4	17 2.6	15 56 17.00	18 12 2.2	0.9	8.1	0.61	19	13 56.4	15 50 54.74	17 49 10.1	1.0	8.6	0.65
5	16 58.7	15 56 18.78	18 11 56.9	0.9	8.1	0.61	20	13 52.2	15 50 39.94	17 48 19.6	1.0	8.6	0.65
6	16 54.8	15 56 20.14	−18 11 50.2	0.9	8.1	0.61	21	13 48.0	15 50 24.91	−17 47 28.5	1.0	8.6	0.65
7	16 50.9	15 56 21.08	18 11 42.3	0.9	8.1	0.61	22	13 43.9	15 50 9.65	17 46 36.8	1.0	8.6	0.65
8	16 47.0	15 56 21.60	18 11 33.2	0.9	8.1	0.61	23	13 39.7	15 49 54.16	17 45 44.5	1.0	8.6	0.65
9	16 43.0	15 56 21.70	18 11 23.0	0.9	8.1	0.61	24	13 35.5	15 49 38.45	17 44 51.6	1.0	8.7	0.65
10	16 39.1	15 56 21.39	18 11 11.6	0.9	8.1	0.61	25	13 31.3	15 49 22.53	17 43 58.3	1.0	8.7	0.65
11	16 35.2	15 56 20.66	−18 10 59.0	0.9	8.2	0.62	26	13 27.1	15 49 6.41	−17 43 4.6	1.0	8.7	0.65
12	16 31.2	15 56 19.51	18 10 45.2	0.9	8.2	0.62	27	13 22.9	15 48 50.10	17 42 10.4	1.0	8.7	0.65
13	16 27.3	15 56 17.94	18 10 30.3	0.9	8.2	0.62	28	13 18.7	15 48 33.60	17 41 15.8	1.0	8.7	0.65
14	16 23.3	15 56 15.97	18 10 14.1	0.9	8.2	0.62	29	13 14.5	15 48 16.93	17 40 20.8	1.0	8.7	0.65
15	16 19.3	15 56 13.59	18 9 56.8	0.9	8.2	0.62	30	13 10.3	15 48 0.08	17 39 25.4	1.0	8.7	0.65
16	16 15.3	15 56 10.80	−18 9 38.3	0.9	8.2	0.62	May 1	13 6.1	15 47 43.08	−17 38 29.6	1.0	8.7	0.65
17	16 11.4	15 56 7.61	18 9 18.8	0.9	8.2	0.62	2	13 1.8	15 47 25.93	17 37 33.5	1.0	8.7	0.65
18	16 7.4	15 56 4.01	18 8 58.1	0.9	8.2	0.62	3	12 57.6	15 47 8.64	17 36 37.1	1.0	8.7	0.65
19	16 3.4	15 56 0.02	18 8 36.3	0.9	8.3	0.62	4	12 53.4	15 46 51.21	17 35 40.4	1.0	8.7	0.65
20	15 59.4	15 55 55.62	18 8 13.4	0.9	8.3	0.62	5	12 49.2	15 46 33.66	17 34 43.5	1.0	8.7	0.65
21	15 55.4	15 55 50.82	−18 7 49.4	0.9	8.3	0.62	6	12 44.9	15 46 16.01	−17 33 46.4	1.0	8.7	0.65
22	15 51.3	15 55 45.62	18 7 24.2	0.9	8.3	0.62	7	12 40.7	15 45 58.26	17 32 49.2	1.0	8.7	0.65
23	15 47.3	15 55 40.04	18 6 58.0	0.9	8.3	0.62	8	12 36.5	15 45 40.41	17 31 51.9	1.0	8.7	0.65
24	15 43.3	15 55 34.06	18 6 30.7	0.9	8.3	0.62	9	12 32.2	15 45 22.48	17 30 54.4	1.0	8.7	0.65
25	15 39.2	15 55 27.69	18 6 2.3	0.9	8.3	0.63	10	12 28.0	15 45 4.48	17 29 56.9	1.0	8.7	0.65
26	15 35.2	15 55 20.93	−18 5 32.8	1.0	8.3	0.63	11	12 23.8	15 44 46.42	−17 28 59.3	1.0	8.7	0.65
27	15 31.1	15 55 13.79	18 5 2.3	1.0	8.4	0.63	12	12 19.6	15 44 28.31	17 28 1.7	1.0	8.7	0.65
28	15 27.1	15 55 6.27	18 4 30.8	1.0	8.4	0.63	13	12 15.3	15 44 10.15	17 27 4.1	1.0	8.7	0.65
29	15 23.0	15 54 58.37	18 3 58.2	1.0	8.4	0.63	14	12 11.1	15 43 51.95	17 26 6.5	1.0	8.7	0.65
30	15 18.9	15 54 50.10	18 3 24.7	1.0	8.4	0.63	15	12 6.9	15 43 33.72	17 25 9.0	1.0	8.7	0.65
31	15 14.9	15 54 41.47	−18 2 50.3	1.0	8.4	0.63	16	12 2.6	15 43 15.46	−17 24 11.5	1.0	8.7	0.65
Apr. 1	15 10.8	15 54 32.47	−18 2 14.9	1.0	8.4	0.63	17	11 58.4	15 42 57.20	−17 23 14.1	1.0	8.7	0.65

FOR TRANSIT AT WASHINGTON.

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S.T. of Semi-diam. Pass. Mer.
	h m	h m s	° ' "	"	"	s
May 16	12 2.6	15 43 15.46	17 24 11.5	1.0	8.7	0.65
17	11 58.4	15 42 57.20	17 23 14.1	1.0	8.7	0.65
18	11 54.1	15 42 38.94	17 22 16.9	1.0	8.7	0.65
19	11 49.9	15 42 20.69	17 21 19.9	1.0	8.7	0.65
20	11 45.7	15 42 2.44	17 20 23.1	1.0	8.7	0.65
21	11 41.4	15 41 44.21	17 19 26.5	1.0	8.7	0.65
22	11 37.2	15 41 26.03	17 18 30.2	1.0	8.7	0.65
23	11 33.0	15 41 7.89	17 17 34.2	1.0	8.7	0.65
24	11 28.7	15 40 49.80	17 16 38.5	1.0	8.7	0.65
25	11 24.5	15 40 31.77	17 15 43.2	1.0	8.7	0.65
26	11 20.3	15 40 13.82	17 14 48.4	1.0	8.7	0.65
27	11 16.0	15 39 55.95	17 13 53.9	1.0	8.7	0.65
28	11 11.8	15 39 38.15	17 12 59.8	1.0	8.7	0.65
29	11 7.6	15 39 20.46	17 12 6.3	1.0	8.7	0.65
30	11 3.4	15 39 2.88	17 11 13.3	1.0	8.7	0.65
31	10 59.1	15 38 45.42	17 10 20.7	1.0	8.7	0.65
June 1	10 54.9	15 38 28.08	17 9 28.8	1.0	8.7	0.65
2	10 50.7	15 38 10.87	17 8 37.5	1.0	8.7	0.65
3	10 46.5	15 37 53.81	17 7 46.8	1.0	8.7	0.64
4	10 42.3	15 37 36.90	17 6 56.8	1.0	8.7	0.64
5	10 38.1	15 37 20.16	17 6 7.5	1.0	8.7	0.64
6	10 33.8	15 37 3.58	17 5 18.9	1.0	8.7	0.64
7	10 29.6	15 36 47.18	17 4 31.1	1.0	8.7	0.64
8	10 25.4	15 36 30.97	17 3 44.1	1.0	8.7	0.64
9	10 21.2	15 36 14.95	17 2 57.9	1.0	8.7	0.64
10	10 17.0	15 35 59.14	17 2 12.5	1.0	8.6	0.64
11	10 12.9	15 35 43.55	17 1 27.2	1.0	8.6	0.64
12	10 8.7	15 35 28.18	17 0 44.2	1.0	8.6	0.64
13	10 4.5	15 35 13.05	17 0 1.4	1.0	8.6	0.64
14	10 0.3	15 34 58.20	16 59 19.5	1.0	8.6	0.64
15	9 56.1	15 34 43.[illegible]	16 58 [illegible]	1.0	8.6	0.64
16	9 52.0	15 34 28.[illegible]	16 57 58.[illegible]	1.0	8.6	0.64
17	9 47.8	15 34 14.56	16 57 19.8	1.0	8.6	0.64
18	9 43.6	15 34 0.55	16 56 41.8	1.0	8.6	0.64
19	9 39.5	15 33 46.81	16 56 4.9	1.0	8.6	0.64
20	9 35.3	15 33 33.38	16 55 29.1	1.0	8.5	0.64
21	9 31.1	15 33 20.19	16 54 54.3	1.0	8.5	0.63
22	9 27.0	15 33 [illegible]	16 54 [illegible]	1.0	8.5	[illegible]
23	9 22.9	15 32 54.64	16 53 4[illegible]	1.0	8.5	[illegible]
24	9 18.7	15 32 42.11	16 53 [illegible]	1.0	8.5	[illegible]
25	9 14.6	15 32 [illegible]	16 52 [illegible]	1.0	8.5	[illegible]
26	9 10.5	15 32 [illegible]	16 52 1[illegible]	1.0	8.5	[illegible]
27	9 6.4	15 32 [illegible]	16 51 [illegible]	1.0	8.5	0.63
28	9 2.2	15 31 55.[illegible]	16 51 [illegible]	1.0	8.5	0.63
29	8 58.1	15 31 45.[illegible]	[illegible]	1.0	8.5	0.63
30	8 54.0	15 31 34.[illegible]	16 50 [illegible]	1.0	8.4	0.63
July 1	8 49.9	15 31 24.[illegible]	16 [illegible]	1.0	8.4	0.63

Date	Mean Time of Transit	Apparent R. Ascension at Transit	Apparent Declination at Transit	Hor. Par.	Semi-diam.	S.T. of Semi-diam. Pass. Mer.
	h m	h m s	° ' "	"	"	s
July 1	8 49.[illegible]	15 31 24.57	16 50 10.[illegible]	1.0	8.4	0.63
2	8 45.8	15 31 14.75	16 49 49.2	1.0	8.4	0.63
3	8 41.7	15 31 5.27	16 49 29.0	1.0	8.4	0.63
4	8 37.6	15 30 56.13	16 49 10.1	1.0	8.4	0.63
5	8 33.6	15 30 47.33	16 48 52.6	1.0	8.4	0.63
6	8 29.5	15 30 38.88	16 48 36.4	1.0	8.4	0.63
7	8 25.4	15 30 30.78	16 48 21.5	1.0	8.4	0.62
8	8 21.4	15 30 23.04	16 48 8.0	1.0	8.4	0.62
9	8 17.3	15 30 15.66	16 47 55.8	0.9	8.3	0.62
10	8 13.3	15 30 8.64	16 47 45.0	0.9	8.3	0.62
11	8 9.2	15 30 1.98	16 47 35.6	0.9	8.3	0.62
12	8 5.2	15 29 55.68	16 47 27.6	0.9	8.3	0.62
13	8 1.2	15 29 49.75	16 47 21.0	0.9	8.3	0.62
14	7 57.2	15 29 44.19	16 47 15.8	0.9	8.3	0.62
15	7 53.1	15 29 39.00	16 47 11.9	0.9	8.2	0.62
16	7 49.1	15 29 34.18	16 47 9.5	0.9	8.2	0.62
17	7 45.1	15 29 29.74	16 47 8.5	0.9	8.2	0.62
18	7 41.1	15 29 25.67	16 47 8.9	0.9	8.2	0.62
19	7 37.1	15 29 21.[illegible]	16 47 10.6	0.9	8.2	0.62
20	7 33.1	15 29 18.62	16 47 13.7	0.9	8.2	0.61
21	7 29.2	15 29 15.68	16 47 18.6	0.9	8.2	0.61
22	7 25.2	15 29 13.24	16 47 24.7	0.9	8.2	0.61
23	7 21.2	15 29 11.[illegible]	16 47 32.3	0.9	8.1	0.61
24	7 17.2	15 29 9.33	16 47 41.4	0.9	8.1	0.61
25	7 13.3	15 29 7.[illegible]	16 47 51.9	0.9	8.1	0.61
26	7 9.3	15 29 6.72	16 48 3.8	0.9	8.1	0.61
27	7 5.4	15 29 6.[illegible]	16 48 17.2	0.9	8.1	0.61
28	7 1.5	15 29 6.[illegible]	16 48 32.1	0.9	8.1	0.61
29	6 57.5	15 29 6.[illegible]	16 48 48.3	0.9	8.1	0.61
30	6 53.6	15 29 6.[illegible]	16 49 6.[illegible]	0.9	8.1	0.61
31	6 49.7	15 29 7.[illegible]	16 49 25.1	0.9	8.1	0.60
Aug 1	6 45.8	15 29 9.35	16 49 45.8	0.9	8.0	0.60
2	6 41.9	15 29 11.13	16 50 7.9	0.9	8.0	0.60
3	6 38.0	15 29 13.[illegible]	16 50 31.3	0.9	8.0	0.60
4	6 34.1	15 29 1[illegible]	16 50 5[illegible]	0.9	8.0	0.60
5	6 30.2	15 29 18.[illegible]	16 51 22.2	0.9	8.0	0.60
6	6 26.3	15 29 22.1[illegible]	16 5[illegible]	0.9	8.0	0.60
7	6 22.5	[illegible]	16 5[illegible]	0.9	8.0	0.60
8	6 18.6	15 29 [illegible]	16 52 4[illegible]	0.9	8.0	0.60
9	6 14.7	15 29 [illegible]	16 53 [illegible]	0.9	8.0	0.59
10	6 10.9	15 29 [illegible]	16 53 [illegible]	0.9	7.9	0.59
11	6 7.1	15 29 44.[illegible]	16 54 [illegible]	0.9	7.9	0.59
12	6 3.2	[illegible]	16 55 4.[illegible]	0.9	7.9	0.59
13	5 59.4	[illegible]	16 55 41.1	0.9	7.9	0.59
14	5 55.[illegible]	[illegible]	16 5[illegible] 19.[illegible]	0.9	7.9	0.59
15	5 51.[illegible]	[illegible]	16 5[illegible]	0.9	7.9	0.59
16	5 47.9	15 3[illegible]	16 57 40.2	0.9	7.9	0.59

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Feb. 15	18 0.3	15 47 3.70	−19 42 21.5	0.5	1.8	0.13	Apr. 1	15 2.2	15 45 55.53	−19 38 38.9	0.5	1.8	0.13
16	17 56.4	15 47 7.01	19 42 31.7	0.5	1.8	0.13	2	14 58.1	15 45 49.34	19 38 19.3	0.5	1.9	0.13
17	17 52.5	15 47 10.10	19 42 41.2	0.5	1.8	0.13	3	14 54.1	15 45 42.99	19 37 59.2	0.5	1.9	0.13
18	17 48.6	15 47 12.96	19 42 50.0	0.5	1.8	0.13	4	14 50.1	15 45 36.48	19 37 38.5	0.5	1.9	0.13
19	17 44.7	15 47 15.59	19 42 58.1	0.5	1.8	0.13	5	14 46.0	15 45 29.80	19 37 17.2	0.5	1.9	0.13
20	17 40.8	15 47 18.00	−19 43 5.6	0.5	1.8	0.13	6	14 42.0	15 45 22.95	−19 36 55.3	0.5	1.9	0.13
21	17 36.9	15 47 20.18	19 43 12.3	0.5	1.8	0.13	7	14 37.9	15 45 15.95	19 36 32.9	0.5	1.9	0.13
22	17 33.0	15 47 22.13	19 43 18.3	0.5	1.8	0.13	8	14 33.9	15 45 8.80	19 36 10.1	0.5	1.9	0.13
23	17 29.1	15 47 23.87	19 43 23.6	0.5	1.8	0.13	9	14 29.8	15 45 1.49	19 35 46.8	0.5	1.9	0.13
24	17 25.2	15 47 25.38	19 43 28.2	0.5	1.8	0.13	10	14 25.7	15 44 54.03	19 35 22.9	0.5	1.9	0.13
25	17 21.3	15 47 26.67	−19 43 32.0	0.5	1.8	0.13	11	14 21.7	15 44 46.43	−19 34 58.6	0.5	1.9	0.13
26	17 17.4	15 47 27.73	19 43 35.2	0.5	1.8	0.13	12	14 17.6	15 44 38.68	19 34 33.8	0.5	1.9	0.13
27	17 13.5	15 47 28.56	19 43 37.7	0.5	1.8	0.13	13	14 13.6	15 44 30.80	19 34 8.6	0.5	1.9	0.13
28	17 9.6	15 47 29.17	19 43 39.4	0.5	1.8	0.13	14	14 9.5	15 44 22.77	19 33 43.0	0.5	1.9	0.13
Mar. 1	17 5.6	15 47 29.56	19 43 40.3	0.5	1.8	0.13	15	14 5.5	15 44 14.62	19 33 16.9	0.5	1.9	0.13
2	17 1.7	15 47 29.73	−19 43 40.5	0.5	1.8	0.13	16	14 1.4	15 44 6.34	−19 32 50.3	0.5	1.9	0.13
3	16 57.8	15 47 29.67	19 43 40.1	0.5	1.8	0.13	17	13 57.3	15 43 57.94	19 32 23.4	0.5	1.9	0.13
4	16 53.8	15 47 29.38	19 43 39.0	0.5	1.8	0.13	18	13 53.2	15 43 49.41	19 31 56.1	0.5	1.9	0.13
5	16 49.9	15 47 28.87	19 43 37.2	0.5	1.8	0.13	19	13 49.2	15 43 40.76	19 31 28.4	0.5	1.9	0.13
6	16 45.9	15 47 28.13	19 43 34.7	0.5	1.8	0.13	20	13 45.1	15 43 31.99	19 31 0.3	0.5	1.9	0.13
7	16 42.0	15 47 27.17	−19 43 31.5	0.5	1.8	0.13	21	13 41.0	15 43 23.12	−19 30 31.8	0.5	1.9	0.13
8	16 38.1	15 47 25.99	19 43 27.7	0.5	1.8	0.13	22	13 36.9	15 43 14.14	19 30 2.9	0.5	1.9	0.13
9	16 34.1	15 47 24.60	19 43 23.2	0.5	1.8	0.13	23	13 32.8	15 43 5.06	19 29 33.7	0.5	1.9	0.13
10	16 30.1	15 47 23.00	19 43 18.0	0.5	1.8	0.13	24	13 28.8	15 42 55.88	19 29 4.2	0.5	1.9	0.13
11	16 26.2	15 47 21.18	19 43 12.0	0.5	1.8	0.13	25	13 24.7	15 42 46.61	19 28 34.2	0.5	1.9	0.13
12	16 22.2	15 47 19.14	−19 43 5.4	0.5	1.8	0.13	26	13 20.6	15 42 37.24	−19 28 3.9	0.5	1.9	0.13
13	16 18.2	15 47 16.88	19 42 58.2	0.5	1.8	0.13	27	13 16.5	15 42 27.78	19 27 33.3	0.5	1.9	0.13
14	16 14.3	15 47 14.41	19 42 50.3	0.5	1.8	0.13	28	13 12.4	15 42 18.24	19 27 2.5	0.5	1.9	0.13
15	16 10.3	15 47 11.73	19 42 41.7	0.5	1.8	0.13	29	13 8.3	15 42 8.62	19 26 31.3	0.5	1.9	0.13
16	16 6.3	15 47 8.84	19 42 32.5	0.5	1.8	0.13	30	13 4.2	15 41 58.92	19 25 59.9	0.5	1.9	0.13
17	16 2.3	15 47 5.75	−19 42 22.6	0.5	1.8	0.13	May 1	13 0.1	15 41 49.14	−19 25 28.3	0.5	1.9	0.13
18	15 58.3	15 47 2.44	19 42 12.1	0.5	1.8	0.13	2	12 56.0	15 41 39.30	19 24 56.4	0.5	1.9	0.13
19	15 54.3	15 46 58.93	19 42 0.9	0.5	1.8	0.13	3	12 51.9	15 41 29.41	19 24 24.2	0.5	1.9	0.13
20	15 50.3	15 46 55.23	19 41 49.1	0.5	1.8	0.13	4	12 47.8	15 41 19.46	19 23 51.8	0.5	1.9	0.13
21	15 46.3	15 46 51.31	19 41 36.6	0.5	1.8	0.13	5	12 43.7	15 41 9.44	19 23 19.3	0.5	1.9	0.13
22	15 42.3	15 46 47.20	−19 41 23.5	0.5	1.8	0.13	6	12 39.6	15 40 59.38	−19 22 46.7	0.5	1.9	0.13
23	15 38.3	15 46 42.89	19 41 9.8	0.5	1.8	0.13	7	12 35.5	15 40 49.28	19 22 13.8	0.5	1.9	0.13
24	15 34.3	15 46 38.39	19 40 55.4	0.5	1.8	0.13	8	12 31.4	15 40 39.14	19 21 40.7	0.5	1.9	0.13
25	15 30.3	15 46 33.69	19 40 40.5	0.5	1.8	0.13	9	12 27.3	15 40 28.97	19 21 7.5	0.5	1.9	0.13
26	15 26.3	15 46 28.80	19 40 25.0	0.5	1.8	0.13	10	12 23.2	15 40 18.76	19 20 34.3	0.5	1.9	0.13
27	15 22.3	15 46 23.72	−19 40 8.8	0.5	1.8	0.13	11	12 19.1	15 40 8.53	−19 20 0.9	0.5	1.9	0.13
28	15 18.3	15 46 18.44	19 39 52.0	0.5	1.8	0.13	12	12 15.0	15 39 58.27	19 19 27.3	0.5	1.9	0.13
29	15 14.3	15 46 12.98	19 39 34.5	0.5	1.8	0.13	13	12 10.9	15 39 47.99	19 18 53.7	0.5	1.9	0.13
30	15 10.2	15 46 7.34	19 39 16.5	0.5	1.8	0.13	14	12 6.8	15 39 37.70	19 18 20.0	0.5	1.9	0.13
31	15 6.2	15 46 1.52	19 38 58.0	0.5	1.8	0.13	15	12 2.7	15 39 27.40	19 17 46.2	0.5	1.9	0.13
Apr. 1	15 2.2	15 45 55.53	−19 38 38.9	0.5	1.8	0.13	16	11 58.6	15 39 17.09	−19 17 12.4	0.5	1.9	0.13
2	14 58.1	15 45 49.34	−19 38 19.3	0.5	1.9	0.13	17	11 54.5	15 39 6.78	−19 16 38.6	0.5	1.9	0.13

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
May 17	11 54.5	15 39 6.78	19 16 38.6	0.5	1.9	0.13
18	11 50.4	15 38 56.48	19 16 4.8	0.5	1.9	0.13
19	11 46.3	15 38 46.18	19 15 30.9	0.5	1.9	0.13
20	11 42.2	15 38 35.89	19 14 57.1	0.5	1.9	0.13
21	11 38.1	15 38 25.61	19 14 23.3	0.5	1.9	0.13
22	11 34.0	15 38 15.35	−19 13 49.6	0.5	1.9	0.13
23	11 29.9	15 38 5.12	19 13 15.9	0.5	1.9	0.13
24	11 25.8	15 37 54.91	19 12 42.3	0.5	1.9	0.13
25	11 21.7	15 37 44.74	19 12 8.6	0.5	1.9	0.13
26	11 17.6	15 37 34.60	19 11 35.1	0.5	1.9	0.13
27	11 13.5	15 37 24.50	−19 11 1.7	0.5	1.9	0.13
28	11 9.4	15 37 14.44	19 10 28.5	0.5	1.9	0.13
29	11 5.3	15 37 4.43	19 9 55.4	0.5	1.9	0.13
30	11 1.2	15 36 54.48	19 9 22.5	0.5	1.9	0.13
31	10 57.1	15 36 44.59	19 8 49.7	0.5	1.9	0.13
June 1	10 53.0	15 36 34.77	−19 8 17.1	0.5	1.9	0.13
2	10 48.9	15 36 25.01	19 7 44.7	0.5	1.9	0.13
3	10 44.8	15 36 15.32	19 7 12.5	0.5	1.9	0.13
4	10 40.7	15 36 5.70	19 6 40.6	0.5	1.9	0.13
5	10 36.7	15 35 56.16	19 6 8.9	0.5	1.9	0.13
6	10 32.6	15 35 46.71	−19 5 37.5	0.5	1.9	0.13
7	10 28.5	15 35 37.35	19 5 6.4	0.5	1.9	0.13
8	10 24.4	15 35 28.07	19 4 35.5	0.5	1.9	0.13
9	10 20.3	15 35 18.88	19 4 4.9	0.5	1.9	0.13
10	10 16.[illegible]	15 35 9.78	19 3 34.7	0.5	1.9	0.13
11	10 12.2	15 35 0.81	−19 3 4.9	0.5	1.9	0.13
12	10 8.1	15 34 51.90	19 2 35.3	0.5	1.9	0.13
13	10 4.0	15 34 43.14	19 2 6.1	0.5	1.9	0.13
14	9 59.9	15 34 34.47	19 1 37.3	0.5	1.9	0.13
15	9 55.8	15 34 25.92	19 1 8.8	0.5	1.9	0.13
16	9 51.8	15 34 17.42	19 0 40.8	0.5	1.9	0.13
17	9 47.7	15 34 9.18	19 0 13.0	0.5	1.9	0.13
18	9 43.6	15 34 0.9[illegible]	18 59 45.7	0.5	1.9	0.13
19	9 39.6	15 33 52.[illegible]	18 59 1[illegible]	0.5	1.9	0.13
20	9 35.5	15 33 45.0[illegible]	18 58 5[illegible]	0.5	1.9	0.13
21	9 31.[illegible]	15 33 37.[illegible]	18 58 [illegible]	0.5	1.9	0.13
22	9 27.4	15 33 [illegible]	18 58 0.9	0.5	1.9	0.13
23	9 23.[illegible]	15 33 [illegible]	18 57 35.[illegible]	0.5	1.9	0.13
24	9 19.[illegible]	15 33 14.[illegible]	18 57 11.4	0.5	1.9	0.13
25	9 15.2	15 33 7.[illegible]	18 56 4[illegible]	0.5	1.9	0.13
26	9 11.2	15 33 [illegible]	18 56 [illegible]	0.5	1.9	0.13
27	9 7.1	15 32 [illegible]	18 56 [illegible]	0.5	1.9	0.13
28	9 3.1	15 32 [illegible]	18 55 [illegible]	0.5	1.9	0.13
29	8 59.0	15 32 [illegible]	18 55 [illegible]	0.5	1.9	0.13
30	8 55.0	15 32 [illegible]	18 54 54.[illegible]	0.5	1.9	0.13
July 1	8 51.0	15 32 27.24	−18 54 34.0	0.5	1.9	0.13
2	8 46.9	15 32 21.11	18 54 13.7	0.5	1.9	0.13

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s
July 1	8 51.0	15 32 27.24	−18 54 34.0	0.5	1.9	0.13
2	8 46.9	15 32 21.11	18 54 13.7	0.5	1.9	0.13
3	8 42.9	15 32 15.14	18 53 54.0	0.5	1.9	0.13
4	8 38.9	15 32 9.35	18 53 34.9	0.5	1.9	0.13
5	8 34.8	15 32 3.74	18 53 16.4	0.5	1.8	0.13
6	8 30.8	15 31 58.30	18 52 58.6	0.5	1.8	0.13
7	8 26.8	15 31 53.04	18 52 41.4	0.5	1.8	0.13
8	8 22.8	15 31 47.97	18 52 24.8	0.5	1.8	0.13
9	8 18.8	15 31 43.07	18 52 8.9	0.5	1.8	0.13
10	8 14.8	15 31 38.35	18 51 53.6	0.5	1.8	0.13
11	8 10.8	15 31 33.81	−18 51 38.8	0.5	1.8	0.13
12	8 6.8	15 31 29.46	18 51 24.7	0.5	1.8	0.13
13	8 2.8	15 31 25.31	18 51 11.2	0.5	1.8	0.13
14	7 58.8	15 31 21.34	18 50 58.4	0.5	1.8	0.13
15	7 54.8	15 31 17.56	18 50 46.3	0.5	1.8	0.13
16	7 50.8	15 31 13.96	18 50 34.9	0.5	1.8	0.13
17	7 46.8	15 31 10.56	18 50 24.2	0.5	1.8	0.13
18	7 42.8	15 31 7.36	18 50 14.2	0.5	1.8	0.13
19	7 38.8	15 31 4.36	18 50 4.8	0.5	1.8	0.13
20	7 34.8	15 31 1.55	18 49 56.1	0.5	1.8	0.13
21	7 30.9	15 30 58.94	−18 49 48.[illegible]	0.5	1.8	0.13
22	7 26.9	15 30 5[illegible]	18 49 41.0	0.5	1.8	0.13
23	7 22.9	15 30 54.32	18 49 34.5	0.5	1.8	0.13
24	7 18.9	15 30 52.32	18 49 [illegible]	0.5	1.8	0.13
25	7 15.0	15 30 50.52	18 49 [illegible]	0.5	1.8	0.13
26	7 11.0	15 30 4[illegible]	−18 49 19.4	0.5	1.8	0.13
27	7 7.1	15 30 4[illegible]	18 49 15.[illegible]	0.5	1.8	0.13
28	7 3.1	15 30 4[illegible]	18 49 1[illegible]	0.5	1.8	0.13
29	6 59.2	15 30 45.[illegible]	18 49 10.7	0.5	1.8	0.13
30	6 55.2	15 30 44.[illegible]	18 49 9.3	0.5	1.8	0.13
31	6 51.3	15 30 44.[illegible]	18 49 8.6	0.5	1.8	0.13
Aug. 1	6 47.3	15 30 43.7[illegible]	18 49 8.7	0.5	1.8	0.13
2	6 43.4	15 30 43.[illegible]	18 49 9.5	0.5	1.8	0.13
3	6 39.5	15 30 43.70	18 49 11.1	0.5	1.8	0.13
4	6 35.6	15 30 44.0[illegible]	18 49 1[illegible]	0.5	1.8	0.13
5	6 31.6	15 30 44.5	−18 49 16.5	0.5	1.8	0.13
6	6 27.7	15 30 45.[illegible]	18 49 [illegible]	0.5	1.8	0.13
7	6 23.8	[illegible]	18 49 24.9	0.5	1.8	0.13
8	6 19.[illegible]	15 30 47.31	18 49 [illegible]	0.5	1.8	0.13
9	6 1[illegible]	[illegible]	18 49 [illegible]	0.5	1.8	0.13
10	6 12.1	15 30 [illegible]	18 49 41.[illegible]	0.5	1.8	0.13
11	6 8.[illegible]	15 30 [illegible]	18 49 [illegible]	0.5	1.8	0.13
12	6 4.[illegible]	[illegible]	18 49 [illegible]	0.5	1.8	0.13
13	6 0.[illegible]	[illegible]	[illegible]	0.5	1.8	0.13
14	5 56.[illegible]	[illegible]	[illegible]	0.5	1.8	0.13
15	5 52.6	15 3[illegible]	[illegible]	0.5	1.8	0.13
16	5 48.[illegible]	15 31 [illegible]	[illegible]	0.5	1.8	0.13

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor. Par.	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Jan. 0	10 25.5	5 9 39.47	+21 30 18.8	0.3	1.3	0.10	Feb. 14	7 25.2	5 6 20.75	+21 28 4.5	0.3	1.3	0.09
1	10 21.4	5 9 32.90	21 30 12.5	0.3	1.3	0.10	15	7 21.3	5 6 19.18	21 28 5.7	0.3	1.3	0.09
2	10 17.4	5 9 26.42	21 30 6.3	0.3	1.3	0.10	16	7 17.3	5 6 17.75	21 28 7.1	0.3	1.3	0.09
3	10 13.3	5 9 20.00	21 30 0.1	0.3	1.3	0.10	17	7 13.3	5 6 16.45	21 28 8.7	0.3	1.3	0.09
4	10 9.3	5 9 13.65	21 29 54.2	0.3	1.3	0.10	18	7 9.4	5 6 15.30	21 28 10.4	0.3	1.3	0.09
5	10 5.3	5 9 7.38	+21 29 48.4	0.3	1.3	0.10	19	7 5.5	5 6 14.30	+21 28 12.3	0.3	1.3	0.09
6	10 1.2	5 9 1.18	21 29 42.7	0.3	1.3	0.10	20	7 1.5	5 6 13.44	21 28 14.4	0.3	1.3	0.09
7	9 57.2	5 8 55.05	21 29 37.2	0.3	1.3	0.10	21	6 57.6	5 6 12.73	21 28 16.7	0.3	1.3	0.09
8	9 53.1	5 8 49.00	21 29 31.8	0.3	1.3	0.10	22	6 53.6	5 6 12.16	21 28 19.3	0.3	1.3	0.09
9	9 49.1	5 8 43.03	21 29 26.5	0.3	1.3	0.10	23	6 49.7	5 6 11.74	21 28 22.1	0.3	1.3	0.09
10	9 45.1	5 8 37.15	+21 29 21.3	0.3	1.3	0.09	24	6 45.8	5 6 11.45	+21 28 25.1	0.3	1.3	0.09
11	9 41.1	5 8 31.36	21 29 16.2	0.3	1.3	0.09	25	6 41.8	5 6 11.32	21 28 28.3	0.3	1.3	0.09
12	9 37.0	5 8 25.67	21 29 11.3	0.3	1.3	0.09	26	6 37.9	5 6 11.33	21 28 31.6	0.3	1.3	0.09
13	9 33.0	5 8 20.07	21 29 6.5	0.3	1.3	0.09	27	6 34.0	5 6 11.50	21 28 35.2	0.3	1.3	0.09
14	9 29.0	5 8 14.57	21 29 1.9	0.3	1.3	0.09	28	6 30.0	5 6 11.81	+21 28 39.0	0.3	1.3	0.09
15	9 25.0	5 8 9.16	+21 28 57.5	0.3	1.3	0.09	Sept. 1	18 39.7	5 27 15.96	+21 52 53.3	0.3	1.3	0.09
16	9 20.9	5 8 3.84	21 28 53.2	0.3	1.3	0.09	2	18 35.8	5 27 19.13	21 52 53.6	0.3	1.3	0.09
17	9 16.9	5 7 58.62	21 28 49.1	0.3	1.3	0.09	3	18 31.9	5 27 22.16	21 52 53.7	0.3	1.3	0.09
18	9 12.9	5 7 53.51	21 28 45.1	0.3	1.3	0.09	4	18 28.0	5 27 25.05	21 52 53.7	0.3	1.3	0.09
19	9 8.9	5 7 48.51	21 28 41.3	0.3	1.3	0.09	5	18 24.2	5 27 27.81	21 52 53.5	0.3	1.3	0.09
20	9 4.9	5 7 43.62	+21 28 37.6	0.3	1.3	0.09	6	18 20.3	5 27 30.43	+21 52 53.2	0.3	1.3	0.09
21	9 0.9	5 7 38.83	21 28 34.1	0.3	1.3	0.09	7	18 16.4	5 27 32.91	21 52 52.8	0.3	1.3	0.09
22	8 56.9	5 7 34.15	21 28 30.8	0.3	1.3	0.09	8	18 12.5	5 27 35.25	21 52 52.3	0.3	1.3	0.09
23	8 52.9	5 7 29.58	21 28 27.6	0.3	1.3	0.09	9	18 8.6	5 27 37.45	21 52 51.7	0.3	1.3	0.09
24	8 48.9	5 7 25.12	21 28 24.6	0.3	1.3	0.09	10	18 4.7	5 27 39.51	21 52 51.0	0.3	1.3	0.09
25	8 44.9	5 7 20.77	+21 28 21.8	0.3	1.3	0.09	11	18 0.8	5 27 41.43	+21 52 50.2	0.3	1.3	0.09
26	8 40.9	5 7 16.54	21 28 19.2	0.3	1.3	0.09	12	17 56.9	5 27 43.21	21 52 49.3	0.3	1.3	0.09
27	8 36.9	5 7 12.44	21 28 16.7	0.3	1.3	0.09	13	17 53.0	5 27 44.84	21 52 48.2	0.3	1.3	0.09
28	8 32.9	5 7 8.46	21 28 14.4	0.3	1.3	0.09	14	17 49.1	5 27 46.33	21 52 47.0	0.3	1.3	0.09
29	8 28.9	5 7 4.61	21 28 12.3	0.3	1.3	0.09	15	17 45.2	5 27 47.68	21 52 45.7	0.3	1.3	0.09
30	8 24.9	5 7 0.88	+21 28 10.4	0.3	1.3	0.09	16	17 41.3	5 27 48.89	+21 52 44.2	0.3	1.3	0.09
31	8 20.9	5 6 57.27	21 28 8.7	0.3	1.3	0.09	17	17 37.3	5 27 49.96	21 52 42.6	0.3	1.3	0.09
Feb. 1	8 16.9	5 6 53.79	21 28 7.1	0.3	1.3	0.09	18	17 33.4	5 27 50.88	21 52 40.9	0.3	1.3	0.09
2	8 12.9	5 6 50.44	21 28 5.8	0.3	1.3	0.09	19	17 29.5	5 27 51.65	21 52 39.1	0.3	1.3	0.09
3	8 8.9	5 6 47.22	21 28 4.7	0.3	1.3	0.09	20	17 25.6	5 27 52.28	21 52 37.2	0.3	1.3	0.09
4	8 4.9	5 6 44.14	+21 28 3.8	0.3	1.3	0.09	21	17 21.7	5 27 52.76	+21 52 35.2	0.3	1.3	0.09
5	8 0.9	5 6 41.19	21 28 3.0	0.3	1.3	0.09	22	17 17.8	5 27 53.10	21 52 33.1	0.3	1.3	0.09
6	7 57.0	5 6 38.37	21 28 2.4	0.3	1.3	0.09	23	17 13.8	5 27 53.30	21 52 30.8	0.3	1.3	0.09
7	7 53.0	5 6 35.69	21 28 2.0	0.3	1.3	0.09	24	17 9.9	5 27 53.36	21 52 28.5	0.3	1.3	0.09
8	7 49.0	5 6 33.13	21 28 1.8	0.3	1.3	0.09	25	17 5.9	5 27 53.27	21 52 26.1	0.3	1.3	0.09
9	7 45.0	5 6 30.71	+21 28 1.8	0.3	1.3	0.09	26	17 2.0	5 27 53.04	+21 52 23.6	0.3	1.3	0.09
10	7 41.1	5 6 28.43	21 28 1.9	0.3	1.3	0.09	27	16 58.1	5 27 52.66	21 52 21.0	0.3	1.3	0.09
11	7 37.1	5 6 26.30	21 28 2.2	0.3	1.3	0.09	28	16 54.1	5 27 52.14	21 52 18.3	0.3	1.3	0.09
12	7 33.1	5 6 24.31	21 28 2.7	0.3	1.3	0.09	29	16 50.2	5 27 51.47	21 52 15.5	0.3	1.3	0.09
13	7 29.2	5 6 22.46	21 28 3.5	0.3	1.3	0.09	30	16 46.3	5 27 50.66	21 52 12.5	0.3	1.3	0.09
14	7 25.2	5 6 20.75	+21 28 4.5	0.3	1.3	0.09	Oct. 1	16 42.3	5 27 49.70	+21 52 9.4	0.3	1.3	0.09
15	7 21.3	5 6 19.18	+21 28 5.7	0.3	1.3	0.09	2	16 38.4	5 27 48.61	+21 52 6.3	0.3	1.3	0.09

FOR TRANSIT AT WASHINGTON.

Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor Par	Semi-diam.	S.T. of Sem. Pass. Mer.	Date.	Mean Time of Transit.	Apparent R. Ascension at Transit.	Apparent Declination at Transit.	Hor Par	Semi-diam.	S.T. of Sem. Pass. Mer.
	h m	h m s	° ′ ″	″	″	s		h m	h m s	° ′ ″	″	″	s
Oct 1	16 42.3	5 27 49.70	+21 52 9.4	0.3	1.3	0.09	Nov 16	13 38.4	5 24 48.30	+21 48 22.0	0.3	1.3	0.10
2	16 38.4	5 27 48.61	21 52 6.3	0.3	1.3	0.09	17	13 34.4	5 24 41.92	21 48 15.6	0.3	1.3	0.10
3	16 34.4	5 27 47.38	21 52 3.1	0.3	1.3	0.09	18	13 30.4	5 24 35.47	21 48 9.2	0.3	1.3	0.10
4	16 30.5	5 27 46.01	21 51 59.8	0.3	1.3	0.09	19	13 26.3	5 24 28.97	21 48 2.9	0.3	1.3	0.10
5	16 26.5	5 27 44.50	21 51 56.4	0.3	1.3	0.09	20	13 22.3	5 24 22.40	21 47 56.5	0.3	1.3	0.10
6	16 22.5	5 27 42.84	+21 51 52.9	0.3	1.3	0.09	21	13 18.2	5 24 15.78	+21 47 50.1	0.3	1.3	0.10
7	16 18.6	5 27 41.04	21 51 49.3	0.3	1.3	0.09	22	13 14.2	5 24 9.09	21 47 43.7	0.3	1.3	0.10
8	16 14.6	5 27 39.10	21 51 45.6	0.3	1.3	0.09	23	13 10.1	5 24 2.34	21 47 37.4	0.3	1.3	0.10
9	16 10.6	5 27 37.03	21 51 41.8	0.3	1.3	0.09	24	13 6.1	5 23 55.53	21 47 31.0	0.3	1.3	0.10
10	16 6.7	5 27 34.82	21 51 37.9	0.3	1.3	0.09	25	13 2.0	5 23 48.66	21 47 24.5	0.3	1.3	0.10
11	16 2.7	5 27 32.48	+21 51 33.9	0.3	1.3	0.09	26	12 58.0	5 23 41.75	+21 47 18.1	0.3	1.3	0.10
12	15 58.7	5 27 30.00	21 51 29.8	0.3	1.3	0.09	27	12 54.0	5 23 34.80	21 47 11.6	0.3	1.3	0.10
13	15 54.8	5 27 27.39	21 51 25.6	0.3	1.3	0.09	28	12 49.9	5 23 27.81	21 47 5.2	0.3	1.3	0.10
14	15 50.8	5 27 24.65	21 51 21.3	0.3	1.3	0.09	29	12 45.9	5 23 20.78	21 46 58.7	0.3	1.3	0.10
15	15 46.8	5 27 21.78	21 51 16.9	0.3	1.3	0.09	30	12 41.8	5 23 13.72	21 46 52.2	0.3	1.3	0.10
16	15 42.8	5 27 18.77	+21 51 12.5	0.3	1.3	0.09	Dec 1	12 37.8	5 23 6.62	+21 46 45.7	0.3	1.3	0.10
17	15 38.8	5 27 15.62	21 51 8.0	0.3	1.3	0.09	2	12 33.7	5 22 59.48	21 46 39.2	0.3	1.3	0.10
18	15 34.9	5 27 12.35	21 51 3.4	0.3	1.3	0.09	3	12 29.7	5 22 52.30	21 46 32.7	0.3	1.3	0.10
19	15 30.9	5 27 8.95	21 50 58.8	0.3	1.3	0.09	4	12 25.6	5 22 45.11	21 46 26.3	0.3	1.3	0.10
20	15 26.9	5 27 5.44	21 50 54.1	0.3	1.3	0.09	5	12 21.6	5 22 37.90	21 46 19.9	0.3	1.3	0.10
21	15 22.9	5 27 1.80	+21 50 49.3	0.3	1.3	0.09	6	12 17.5	5 22 30.67	+21 46 13.5	0.3	1.3	0.10
22	15 18.9	5 26 58.03	21 50 44.4	0.3	1.3	0.09	7	12 13.5	5 22 23.41	21 46 7.1	0.3	1.3	0.10
23	15 14.9	5 26 54.13	21 50 39.4	0.3	1.3	0.09	8	12 9.4	5 22 16.18	21 46 0.7	0.3	1.3	0.10
24	15 10.9	5 26 50.09	21 50 34.3	0.3	1.3	0.09	9	12 5.4	5 22 8.9[illegible]	21 45 54.4	0.3	1.3	0.10
25	15 6.9	5 26 45.94	21 50 29.1	0.3	1.3	0.09	10	12 1.3	5 22 1.62	21 45 48.0	0.3	1.3	0.10
26	15 2.9	5 26 41.68	+21 50 23.9	0.3	1.3	0.09	11	11 57.2	5 21 54.32	+21 45 41.7	0.3	1.3	0.10
27	14 58.9	5 26 37.32	21 50 18.7	0.3	1.3	0.09	12	11 53.2	5 21 47.03	21 45 35.4	0.3	1.3	0.10
28	14 54.9	5 26 32.8[illegible]	21 50 13.4	0.3	1.3	0.09	13	11 49.1	5 21 39.75	21 45 29.2	0.3	1.3	0.10
29	14 50.9	5 26 28.11	21 50 8.1	0.3	1.3	0.09	14	11 45.1	5 21 32.47	21 45 23.0	0.3	1.3	0.10
30	14 46.9	5 26 23.[illegible]	21 50 2.7	0.3	1.3	0.09	15	11 41.0	5 21 25.20	21 45 16.9	0.3	1.3	0.10
31	14 42.8	5 26 18.[illegible]	+21 49 57.2	0.3	1.3	0.09	16	11 37.0	5 21 17.93	+21 45 10.7	0.3	1.3	0.10
Nov 1	14 38.8	5 26 13.75	21 49 51.6	0.3	1.3	0.09	17	11 32.9	5 21 10.66	21 45 4.6	0.3	1.3	0.10
2	14 34.8	5 26 8.71	21 49 46.0	0.3	1.3	0.10	18	11 28.9	5 21 3.40	21 44 58.6	0.3	1.3	0.10
3	14 30.8	5 26 3.57	21 49 40.3	0.3	1.3	0.10	19	11 24.8	5 20 56.17	21 44 52.6	0.3	1.3	0.10
4	14 26.8	5 25 58.34	21 49 34.6	0.3	1.3	0.10	20	11 20.8	5 20 48.96	21 44 46.7	0.3	1.3	0.10
5	14 22.8	5 25 53.00	+21 49 28.8	0.3	1.3	0.10	21	11 16.7	5 20 41.78	+21 44 40.8	0.3	1.3	0.10
6	14 18.7	5 25 47.5[illegible]	21 49 22.9	0.3	1.3	0.10	22	11 12.7	5 20 34.61	21 44 35.0	0.3	1.3	0.10
7	14 14.7	5 25 42.[illegible]	21 49 17.[illegible]	0.3	1.3	0.10	23	11 8.6	5 20 27.51	21 44 29.3	0.3	1.3	0.10
8	14 10.7	5 25 36.[illegible]	21 49 11.0	0.3	1.3	0.10	24	11 4.6	5 20 20.42	21 44 23.6	0.3	1.3	0.10
9	14 6.7	5 25 [illegible]	21 49 5.[illegible]	0.3	1.3	0.10	25	11 0.5	5 20 13.37	21 44 18.0	0.3	1.3	0.10
10	14 2.6	5 25 24.[illegible]	+21 48 [illegible]	0.3	1.3	0.10	26	10 56.5	5 20 6.35	+21 44 12.4	0.3	1.3	0.10
11	13 58.6	5 25 1[illegible]	21 48 [illegible]	[illegible]	1.3	0.10	27	10 52.4	5 19 59.37	21 44 6.9	0.3	1.3	0.10
12	13 54.6	5 25 13.[illegible]	21 48 [illegible]	0.3	1.3	0.10	28	10 48.4	5 19 52.44	21 44 1.5	0.3	1.3	0.10
13	13 50.5	5 25 7.01	21 48 [illegible]	[illegible]	1.3	0.10	29	10 44.3	5 19 45.57	21 43 56.2	0.3	1.3	0.10
14	13 46.5	5 25 [illegible]	21 48 [illegible]	[illegible]	1.3	0.10	30	10 40.3	5 19 38.75	21 43 51.0	0.3	1.3	0.10
15	13 42.5	5 24 5[illegible]	+21 48 [illegible]	[illegible]	1.3	0.10	31	10 36.2	5 19 31.98	+21 43 45.9	0.3	1.3	0.10
16	13 38.4	5 24 48.[illegible]	+21 48 2[illegible]	0.3	1.3	[illegible]	32	10 32.2	5 19 25.26	+21 43 40.9	0.3	1.3	0.10

PART III

PHENOMENA

ECLIPSES, 1897.

In the year 1897 there will be two eclipses, both of the sun.

I.—*An Annular Eclipse of the Sun*, 1897, February 1, visible at Washington as a partial eclipse, towards sunset.

ELEMENTS OF THE ECLIPSE.

Greenwich mean time of ☌ in right ascension, February 1d 8h 6m 40s.8

Sun and moon's R. A.	21h 3m 3s.13	Hourly motions	10s.16 and 128s.73
Sun's declination	16° 50′ 23″.8 S.	Hourly motion	0′ 43″.4 N.
Moon's declination	17 2 6.7 S.	Hourly motion	12 20.2 N.
Sun's equa. hor. parallax	8.9	Sun's true semidiameter	16 13.6
Moon's equa. hor. parallax	57 6.3	Moon's true semidiameter	15 32.9

CIRCUMSTANCES OF THE ECLIPSE.

		d	h	m	Longitude from Greenwich.	Latitude.
Eclipse begins	February	1	5	23.0	176° 33′.1 W.	28° 1′.8 S.
Central eclipse begins		1	6	25.9	166 10.2 E.	31 47.3 S.
Central eclipse at noon		1	8	6.7	118 11.5 W.	28 52.8 S.
Central eclipse ends		1	10	4.9	61 5.4 W.	10 54.3 N.
Eclipse ends		1	11	8.0	78 3.7 W.	14 42.9 N.

II.—*An Annular Eclipse of the Sun*, 1897, July 29, visible at Washington as a partial eclipse.

ELEMENTS OF THE ECLIPSE.

Greenwich mean time of ☌ in right ascension, July 29d 3h 59m 47s.5

Sun and moon's R. A.	8h 36m 27s.72	Hourly motions	9s.77 and 128s.08
Sun's declination	18° 36′ 15″.2 N.	Hourly motion	0′ 36″.0 S.
Moon's declination	18 32 22.7 N.	Hourly motion	10 56.5 S.
Sun's equa. hor. parallax	8.7	Sun's true semidiameter	15 45.5
Moon's equa. hor. parallax	56 20.9	Moon's true semidiameter	15 20.5

CIRCUMSTANCES OF THE ECLIPSE.

		d	h	m	Longitude from Greenwich.	Latitude.
Eclipse begins	July	29	1	2.0	109° 49′.6 W.	16° 57′.0 N.
Central eclipse begins		29	2	4.7	125 2.0 W.	15 39.3 N.
Central eclipse at noon		29	3	59.8	58 23.6 W.	14 44.6 N.
Central eclipse ends		29	5	49.7	3 57.7 W.	22 43.2 S.
Eclipse ends		29	6	52.1	19 6.4 W.	21 32.3 S.

The regions within which the eclipses of the sun are visible, are laid down on the accompanying charts, from which, by means of the dotted lines, may also be found the Greenwich times of beginning and ending, within fifteen or twenty minutes.

BESSELIAN ELEMENTS OF THE ANNULAR ECLIPSE OF THE SUN, 1897, FEBRUARY 1.

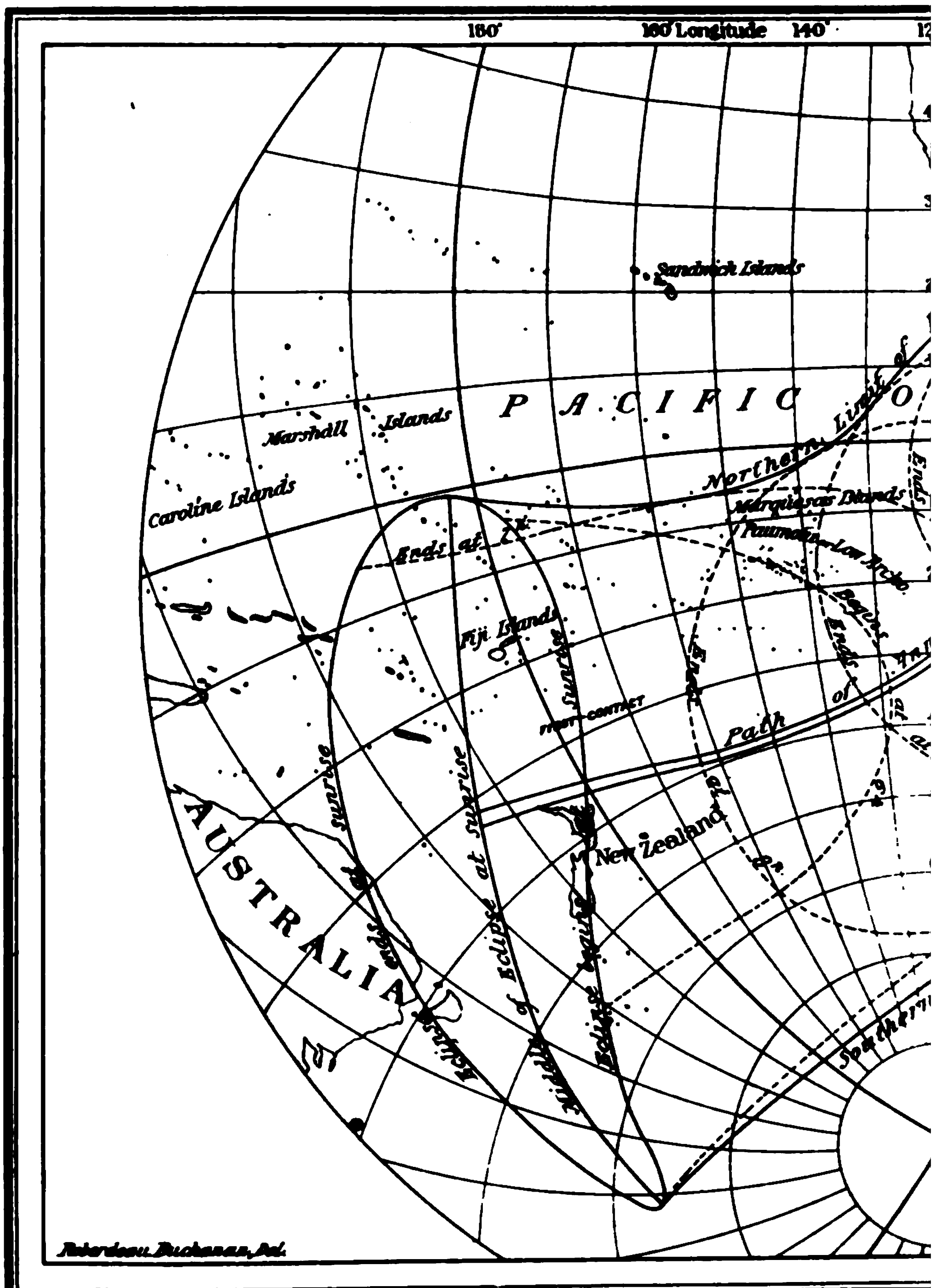
Greenwich Mean Time	Coordinates of Centre of Shadow on Fundamental Plane. x	y	Direction of Axis of Shadow. Log sin d	Log cos d	μ	Radius of Penumbra and Shadow On Fundamental Plane. l	l'
h m					° ′		
5 20	−1.38266	0.77097	−9.46274	+9.98089	76 31.3	+0.55748	+0.01151
30	1.29970	0.73711	9.46269	9.98090	79 1.3	0.55751	0.01154
40	1.21674	0.70325	9.46265	9.98090	81 31.3	0.55754	0.01157
50	1.13378	0.66938	9.46260	9.98090	84 1.3	0.55757	0.01160
6 0	−1.05083	−0.63550	9.46255	+9.98091	86 31.3	+0.55760	+0.01163
10	0.96787	0.60161	9.46250	9.98091	89 1.3	0.55763	0.01166
20	0.88491	0.56771	9.46245	9.98092	91 31.3	0.55765	0.01169
30	0.80195	0.53380	9.46240	9.98092	94 1.3	0.55768	0.01171
40	0.71899	0.49989	9.46236	9.98093	96 31.3	0.55770	0.01174
50	0.63604	0.46598	9.46231	9.98093	99 1.3	0.55773	0.01177
7 0	−0.55309	−0.43206	9.46226	+9.98094	101 31.3	+0.55775	+0.01179
10	0.47014	0.39813	9.46221	9.98094	104 1.3	0.55778	0.01182
20	0.38719	0.36419	9.46216	9.98094	106 31.3	0.55780	0.01184
30	0.30424	0.33025	9.46211	9.98095	109 1.3	0.55783	0.01186
40	0.22129	0.29630	9.46207	9.98095	111 31.3	0.55785	0.01188
50	0.13835	0.26234	9.46202	9.98096	114 1.3	0.55787	0.01190
8 0	−0.05541	0.22838	9.46197	+9.98096	116 31.3	+0.55789	+0.01192
10	+0.02752	0.19441	9.46192	9.98096	119 1.3	0.55791	0.01194
20	0.11045	0.16044	9.46187	9.98097	121 31.3	0.55793	0.01196
30	0.19337	0.12646	9.46182	9.98097	124 1.3	0.55795	0.01198
40	0.27629	0.09247	9.46178	9.98098	126 31.3	0.55797	0.01200
50	0.35921	0.05848	9.46173	9.98098	129 1.3	0.55799	0.01202
9 0	+0.44213	−0.02448	9.46168	+9.98099	131 31.3	+0.55800	+0.01203
10	0.52504	+0.00951	9.46163	9.98099	134 1.3	0.55802	0.01205
20	0.60795	0.04354	9.46158	9.98100	136 31.3	0.55803	0.01206
30	0.69086	0.07756	9.46153	9.98100	139 1.3	0.55805	0.01208
40	0.77376	0.11158	9.46148	9.98101	141 31.3	0.55806	0.01209
50	0.85666	0.14560	9.46143	9.98101	144 1.3	0.55808	0.01211
10 0	+0.93955	+0.17963	9.46138	+9.98102	146 31.3	+0.55809	+0.01212
10	1.02243	0.21367	9.46133	9.98102	149 1.3	0.55811	0.01214
20	1.10531	0.24771	9.46128	9.98103	151 31.3	0.55812	0.01215
30	1.18818	0.28176	9.46124	9.98103	154 1.3	0.55813	0.01216
40	1.27105	0.31581	9.46119	9.98104	156 31.3	0.55814	0.01217
50	1.35391	0.34987	9.46114	9.98104	159 1.3	0.55815	0.01218
11 0	+1.43676	+0.38393	−9.46110	+9.98105	161 31.3	+0.55816	+0.01219
10	+1.51960	+0.41799	−9.46105	+9.98105	164 1.3	+0.55817	+0.01220

Greenwich Mean Time	Log Δ x for 1 Minute.	Log Δ y for 1 Minute.	Log Δ μ for 1 Minute.	Log Tangents of Angles of Cones. Penumbra.	Shadow.
h m					
5 0	+ 7.9189	+ 7.5294	+ 1.1761	+ 7.67620	+ 7.67403
6 0	7.9189	7.5300	1.1761	7.67620	7.67403
7 0	7.9188	7.5306	1.1761	7.67620	7.67403
8 0	7.9187	7.5310	1.1761	7.67619	7.67403
9 0	7.9186	7.5315	1.1761	7.67619	7.67402
10 0	7.9185	7.5319	1.1761	7.67619	7.67402
11 0	7.9183	7.5323	1.1761	7.67619	7.67402
12 0	+ 7.9180	+ 7.5326	+ 1.1761	+ 7.67618	+ 7.67402

PATH OF THE ANNULUS DURING THE ANNULAR ECLIPSE OF THE SUN, 1897, FEBRUARY 1.

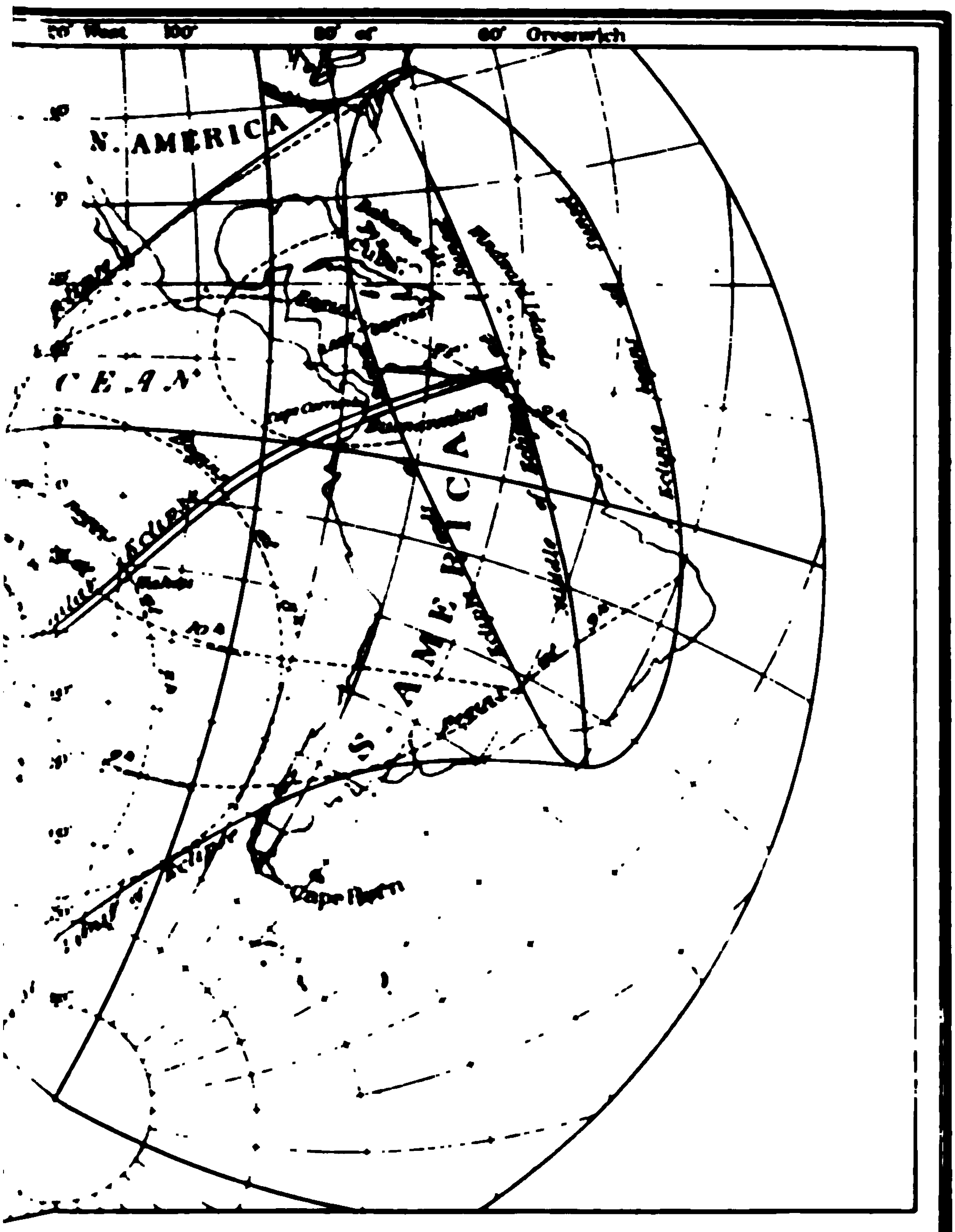
Greenwich Mean Time.	Northern Limit of Annulus Path.		Central Line.		Southern Limit of Annulus Path.		Duration of Annulus on Central Line.
	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	
	° ′	° ′	° ′	° ′	° ′	° ′	m s
Limits.	−31 8.0	166 34.5 E.	−31 47.3	166 10.2 E.	−32 25.4	165 48.8 E.	
6^h 30^m	35 44.9	176 10.2 W.	36 12.2	177 4.3 W.	36 29.5	177 58.4 W.	2 32.9
35	37 8.5	168 23.8	37 39.4	168 56.2	38 10.3	169 28.6	2 33.8
40	37 51.2	162 32.2	38 22.8	162 54.0	38 54.4	163 15.8	2 34.5
45	38 12.4	157 39.5	38 43.7	157 54.1	39 15.0	158 8.7	2 35.2
50	38 18.7	153 29.5	38 49.7	153 39.0	39 20.7	153 48.5	2 35.8
55	38 14.5	149 45.1	38 44.9	149 50.3	39 15.3	149 55.5	2 36.3
7 0	−38 1.7	146 24.4	−38 31.4	146 26.1	−39 1.1	146 27.8	2 36.8
5	37 42.3	143 20.6	38 11.2	143 19.4	38 40.1	143 18.2	2 37.1
10	37 17.2	140 31.3	37 45.3	140 27.6	38 13.4	140 23.9	2 37.3
15	36 47.1	137 54.4	37 14.4	137 48.5	37 41.7	137 42.6	2 37.5
20	36 12.7	135 28.4	36 39.2	135 20.6	37 5.7	135 12.8	2 37.6
25	35 34.7	133 11.9	36 0.4	133 2.5	36 26.1	132 53.1	2 37.7
30	−34 53.2	131 3.8	−35 18.2	130 53.0	−35 43.2	130 42.2	2 37.7
35	34 9.0	129 3.1	34 33.3	128 51.1	34 57.6	128 39.1	2 37.6
40	33 21.9	127 9.3	33 45.5	126 56.2	34 9.1	126 43.1	2 37.5
45	32 32.3	125 21.6	32 55.2	125 7.4	33 18.1	124 53.2	2 37.4
50	31 40.4	123 39.3	32 2.7	123 24.1	32 25.0	123 8.9	2 37.3
55	30 46.3	122 1.5	31 8.0	121 45.7	31 29.7	121 29.9	2 37.2
8 0	−29 50.2	120 27.9	−30 11.4	120 11.5	−30 32.6	119 55.1	2 37.0
5	28 52.2	118 58.1	29 12.9	118 41.1	29 33.6	118 24.1	2 36.8
10	27 52.2	117 31.5	28 12.4	117 13.9	28 32.6	116 56.3	2 36.5
15	26 50.7	116 7.7	27 10.4	115 49.5	27 30.1	115 31.3	2 36.3
20	25 47.4	114 46.3	26 6.7	114 27.6	26 26.0	114 8.9	2 36.1
25	24 42.3	113 26.8	25 1.2	113 7.5	25 20.1	112 48.2	2 35.9
30	−23 35.4	112 8.7	−23 54.0	111 48.9	−24 12.6	111 29.1	2 35.7
35	22 26.7	110 51.7	22 45.1	110 31.4	23 3.5	110 11.1	2 35.4
40	21 16.3	109 35.6	21 34.5	109 14.7	21 52.7	108 53.8	2 35.2
45	20 4.1	108 19.5	20 22.0	107 58.0	20 39.9	107 36.5	2 35.1
50	18 49.8	107 3.2	19 7.5	106 41.1	19 25.2	106 19.0	2 35.1
55	17 33.6	105 45.9	17 51.2	105 23.2	18 8.8	105 0.5	2 35.0
9 0	−16 15.2	104 27.1	−16 32.7	104 3.8	−16 50.2	103 40.5	2 34.9
5	14 54.3	103 6.5	15 11.8	102 42.5	15 29.3	102 18.5	2 35.0
10	13 31.0	101 42.8	13 48.5	101 18.1	14 6.0	100 53.4	2 35.1
15	12 5.2	100 16.0	12 22.7	99 50.3	12 40.2	99 24.6	2 35.1
20	10 36.2	98 44.1	10 53.7	98 17.3	11 11.2	97 50.5	2 35.2
25	9 3.7	97 5.1	9 21.3	96 37.3	9 38.9	96 9.5	2 35.2
30	− 7 26.7	95 18.2	− 7 44.4	94 49.2	− 8 2.1	94 20.2	2 35.2
35	5 45.0	93 21.4	6 2.8	92 50.8	6 20.6	92 20.2	2 35.4
40	3 57.0	91 12.0	4 15.0	90 39.1	4 33.0	90 6.2	2 35.6
45	− 2 1.4	88 40.8	2 19.5	88 5.6	2 37.6	87 30.4	2 35.8
50	+ 0 3.7	85 44.1	− 0 14.4	85 5.2	− 0 32.5	84 26.3	2 36.1
55	2 27.5	82 1.4	+ 2 9.7	81 16.5	+ 1 51.9	80 31.6	2 36.3
10 0	+ 5 19.2	76 58.3	+ 5 3.6	75 56.5	+ 4 48.0	74 57.7	2 36.5
Limits.	+11 21.2	61 19.3 W.	+10 54.3	61 5.4 W.	+10 15.1	60 46.7 W.	

ANNULAR ECLIPSE o



NOTE: *The hours of beginning and*

SE OF FEBRUARY 1st 1897.



...ng and ending are expressed in Greenwich Mean Time

BESSELIAN ELEMENTS OF THE ANNULAR ECLIPSE OF THE SUN, 1897, JULY 29.

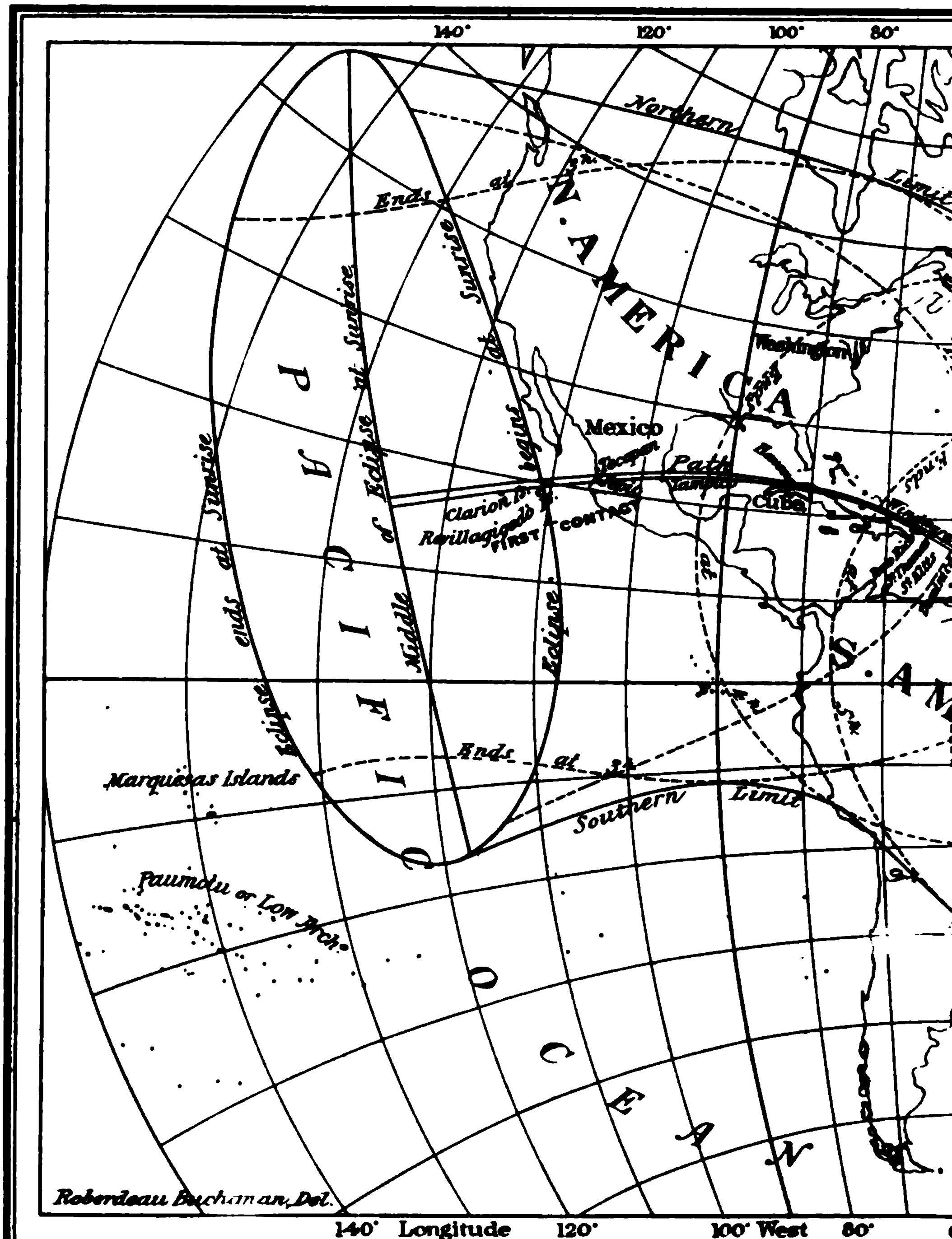
Greenwich Mean Time	Co-ordinates of Centre of Shadow on Fundamental Plane.		Direction of Axis of Shadow.			Radius of Penumbra and Shadow On Fundamental Plane.	
	x	y	Log sin d	Log cos d	μ	l	l'
h m					° '		
1 0	−1.49510	+0.48130	+9.50448	+9.97662	13 26.4	+0.55362	+0.00767
10	1.41195	0.45075	9.50444	9.97662	15 56.5	0.55361	0.00766
20	1.32880	0.42020	9.50441	9.97663	18 26.5	0.55360	0.00765
30	1.24565	0.38964	9.50437	9.97663	20 56.5	0.55359	0.00764
40	1.16249	0.35908	9.50433	9.97663	23 26.5	0.55358	0.00763
50	1.07933	0.32851	9.50430	9.97664	25 56.5	0.55357	0.00762
2 0	−0.99617	+0.29793	+9.50426	+9.97664	28 26.5	+0.55356	+0.00761
10	0.91301	0.26735	9.50423	9.97665	30 56.6	0.55355	0.00760
20	0.82985	0.23675	9.50419	9.97665	33 26.6	0.55354	0.00759
30	0.74669	0.20614	9.50416	9.97666	35 56.6	0.55352	0.00758
40	0.66353	0.17553	9.50412	9.97666	38 26.6	0.55351	0.00756
50	0.58037	0.14491	9.50409	9.97667	40 56.6	0.55350	0.00755
3 0	−0.49721	+0.11428	+9.50405	+9.97667	43 26.6	+0.55348	+0.00753
10	0.41405	0.08365	9.50402	9.97668	45 56.6	0.55347	0.00752
20	0.33089	0.05301	9.50398	9.97668	48 26.7	0.55345	0.00750
30	0.24773	+0.02237	9.50394	9.97668	50 56.7	0.55343	0.00748
40	0.16457	0.00828	9.50391	9.97669	53 26.7	0.55342	0.00747
50	−0.08141	0.03893	9.50387	9.97669	55 56.7	0.55340	0.00745
4 0	+0.00174	−0.06959	+9.50383	+9.97669	58 26.7	+0.55338	+0.00743
10	0.08489	0.10025	9.50379	9.97670	60 56.7	0.55336	0.00741
20	0.16804	0.13092	9.50376	9.97670	63 26.8	0.55334	0.00739
30	0.25119	0.16160	9.50372	9.97670	65 56.8	0.55332	0.00737
40	0.33434	0.19229	9.50369	9.97671	68 26.8	0.55330	0.00735
50	0.41749	0.22298	9.50365	9.97671	70 56.8	0.55327	0.00733
5 0	+0.50064	−0.25368	+9.50362	+9.97671	73 26.8	+0.55325	+0.00731
10	0.58379	0.28439	9.50358	9.97672	75 56.8	0.55323	0.00729
20	0.66694	0.31510	9.50355	9.97672	78 26.9	0.55321	0.00726
30	0.75008	0.34582	9.50351	9.97673	80 56.9	0.55318	0.00724
40	0.83322	0.37654	9.50347	9.97673	83 26.9	0.55316	0.00721
50	0.91636	0.40726	9.50344	9.97674	85 56.9	0.55314	0.00719
6 0	+0.99950	−0.43799	+9.50340	+9.97674	88 26.9	+0.55311	+0.00716
10	1.08263	0.46872	9.50337	9.97674	90 56.9	0.55309	0.00714
20	1.16576	0.49946	9.50333	9.97675	93 27.0	0.55306	0.00711
30	1.24888	0.53021	9.50329	9.97675	95 57.0	0.55303	0.00708
40	1.33200	0.56096	9.50326	9.97675	98 27.0	0.55300	0.00706
50	1.41511	0.59172	9.50322	9.97676	100 57.0	0.55297	0.00703
7 0	+1.49822	−0.62248	+9.50318	+9.97676	103 27.0	+0.55294	+0.00700

Greenwich Mean Time	Log Δ x for 1 Minute.	Log Δ y for 1 Minute.	Log Δ μ for 1 Minute.	Log Tangents of Angles of Cones— Penumbra.	Shadow.
h m					
1 0	+ 7.9199	− 7.4849	+1.1761	+7.66345	+7.66128
2 0	7.9199	7.4855	1.1761	7.66345	7.66129
3 0	7.9199	7.4861	1.1761	7.66346	7.66129
4 0	7.9199	7.4866	1.1761	7.66346	7.66129
5 0	7.9198	7.4871	1.1761	7.66346	7.66129
6 0	7.9198	7.4876	1.1761	7.66346	7.66129
7 0	+ 7.9197	− 7.4880	+1.1761	+7.66346	+7.66130

PATH OF THE ANNULUS DURING THE ANNULAR ECLIPSE OF THE SUN, 1897, JULY 29.

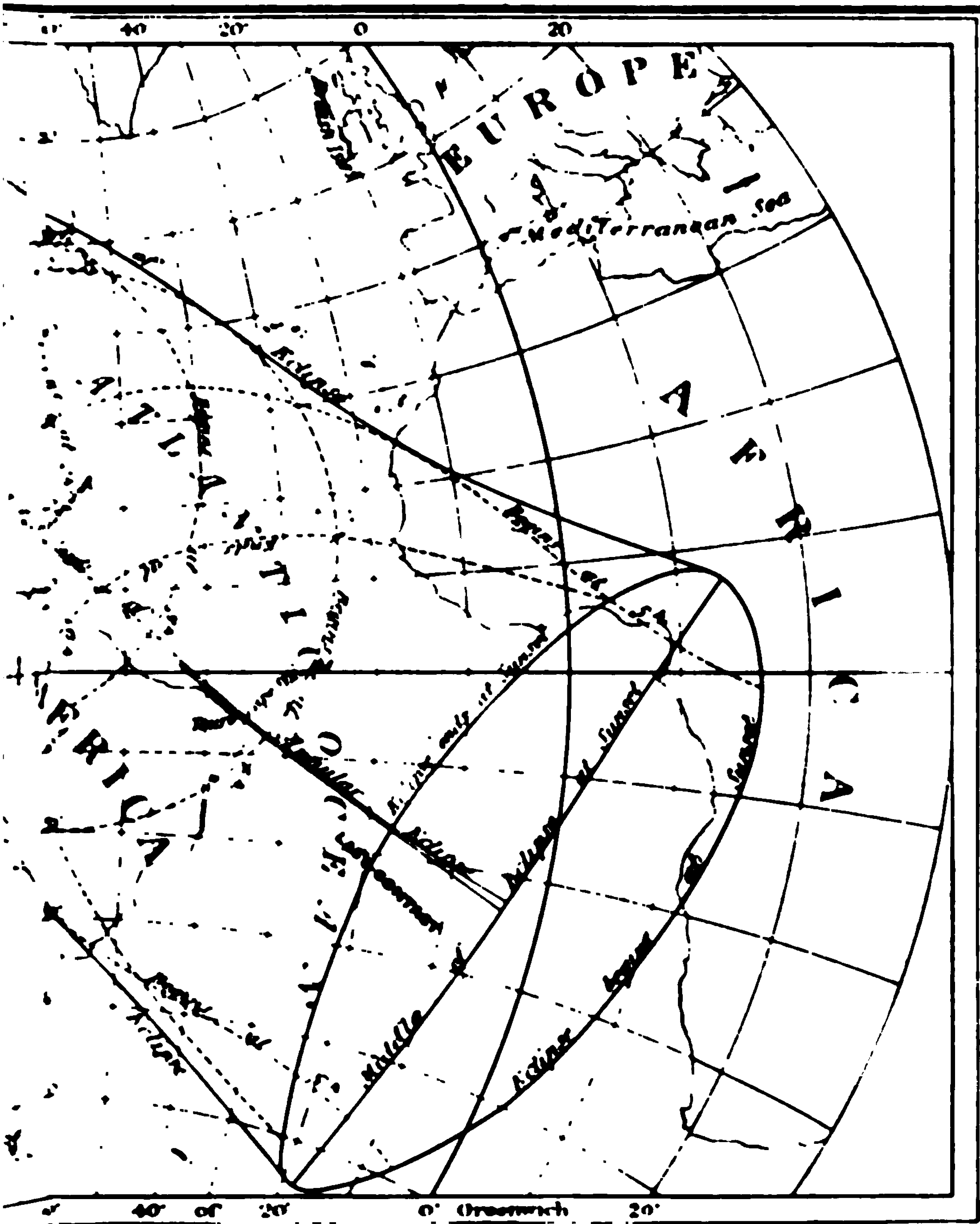
Greenwich Mean Time.	Northern Limit of Annulus Path.		Central Line.		Southern Limit of Annulus Path.		Duration of Annulus on Central Line.
	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	Latitude.	Longitude from Greenwich.	
	° ′	° ′	° ′	° ′	° ′	° ′	m s
Limits.	+16 0.1	125 6.4 W.	+15 39.3	125 2.0 W.	+15 13.0	124 55.0 W.	
2^h 5^m	17 24.7	121 10.8	17 10.0	120 34.3	16 55.3	119 57.8	1 41.6
10	21 2.1	108 23.8	20 42.2	108 15.8	20 22.3	108 7.8	1 37.5
15	22 21.9	102 14.0	22 2.9	102 9.0	21 43.9	102 4.0	1 34.9
20	23 7.6	97 35.4	22 49.6	97 32.4	22 31.6	97 29.4	1 32.7
25	23 34.7	93 44.6	23 17.7	93 43.2	23 0.7	93 41.8	1 30.7
30	+23 49.2	90 25.6	+23 33.1	90 25.6	+23 17.0	90 25.6	1 28.9
35	23 54.6	87 27.9	23 39.3	87 28.8	23 24.0	87 29.7	1 27.1
40	23 52.3	84 46.6	23 37.7	84 48.2	23 23.1	84 49.8	1 25.3
45	23 44.1	82 19.2	23 30.2	82 21.4	23 16.3	82 23.6	1 23.6
50	23 30.6	80 3.4	23 17.4	80 6.2	23 4.2	80 9.0	1 22.0
55	23 12.7	77 56.4	23 0.1	77 59.7	22 47.5	78 3.0	1 20.5
3 0	+22 50.7	75 57.7	+22 38.7	76 1.4	+22 26.7	76 5.1	1 19.0
5	22 25.2	74 5.8	22 13.8	74 9.9	22 2.4	74 14.0	1 17.5
10	21 56.4	72 20.2	21 45.5	72 24.6	21 34.6	72 29.0	1 16.1
15	21 24.0	70 39.8	21 13.5	70 44.4	21 3.0	70 49.0	1 14.8
20	20 49.1	69 4.1	20 39.0	69 8.9	20 28.9	69 13.7	1 13.6
25	20 12.5	67 32.5	20 2.8	67 37.5	19 53.1	67 42.5	1 12.5
30	+19 33.6	66 4.7	+19 24.2	66 9.9	+19 14.8	66 15.1	1 11.4
35	18 51.8	64 40.3	18 42.8	64 45.7	18 33.8	64 51.1	1 10.4
40	18 7.6	63 19.0	17 58.9	63 24.5	17 50.2	63 30.0	1 9.5
45	17 21.4	61 59.8	17 13.0	62 5.5	17 4.6	62 11.2	1 8.8
50	16 33.2	60 43.0	16 25.0	60 48.8	16 16.8	60 54.6	1 8.1
55	15 42.7	59 27.9	15 34.7	59 33.9	15 26.7	59 39.9	1 7.5
4 0	+14 50.3	58 14.2	+14 42.4	58 20.5	+14 34.5	58 26.8	1 7.0
5	13 55.9	57 1.8	13 48.2	57 8.3	13 40.5	57 14.8	1 6.7
10	12 59.4	55 50.3	12 51.8	55 57.0	12 44.2	56 3.7	1 6.5
15	12 0.8	54 39.5	11 53.2	54 46.2	11 45.6	54 52.9	1 6.5
20	11 0.1	53 28.7	10 52.6	53 35.5	10 45.1	53 42.3	1 6.5
25	9 57.5	52 17.8	9 50.0	52 24.7	9 42.5	52 31.6	1 6.7
30	+ 8 52.7	51 6.1	+ 8 45.2	51 13.2	+ 8 37.7	51 20.3	1 7.0
35	7 45.5	49 53.4	7 37.9	50 0.8	7 30.3	50 8.2	1 7.4
40	6 35.8	48 39.2	6 28.2	48 46.9	6 20.6	48 54.6	1 7.9
45	5 23.6	47 23.0	5 15.9	47 31.0	5 8.2	47 39.0	1 8.6
50	4 8.6	46 4.0	4 0.8	46 12.3	3 53.0	46 20.6	1 9.4
55	2 50.8	44 41.7	2 42.8	44 50.3	2 34.8	44 58.9	1 10.3
5 0	+ 1 29.5	43 14.8	+ 1 21.3	43 23.8	+ 1 13.1	43 32.8	1 11.4
5	+ 0 4.5	41 42.6	− 0 4.0	41 52.0	− 0 12.5	42 1.4	1 12.6
10	− 1 24.9	40 2.9	1 33.7	40 12.8	1 42.5	40 22.7	1 14.0
15	2 59.1	38 14.4	3 8.3	38 24.9	3 17.5	38 35.4	1 15.5
20	4 39.3	36 14.7	4 48.9	36 25.8	4 58.5	36 36.9	1 17.2
25	6 26.9	33 59.0	6 37.0	34 11.0	6 47.1	34 23.0	1 19.1
30	− 8 23.8	31 22.3	− 8 34.5	31 35.2	− 8 45.2	31 48.1	1 21.1
35	10 33.6	28 15.7	10 44.9	28 29.7	10 56.2	28 43.7	1 23.5
40	13 3.4	24 19.7	13 15.6	24 35.5	13 27.8	24 51.3	1 26.2
45	16 8.3	18 50.2	16 21.7	19 8.7	16 35.1	19 27.2	1 29.7
Limits	−22 20.4	3 52.4 W.	−22 43.2	3 57.7 W.	−23 6.8	4 5.3 W.	

ANNULAR ECLIP[S]



NOTE: *The hours of beginning an*

SE OF JULY 29th 1897.



...ndings are expressed in Greenwich Mean Time

WASHINGTON MEAN TIME.

PHASES OF THE MOON

New Moon	d	h	m	First Quarter	d	h	m	Full Moon	d	h	m	Last Quarter	d	h	m
January	2	22	55.2	January	10	4	37.6	January	18	3	[illegible]	January	25	3	0.4
February	1	3	5.1	February	9	2	[illegible]	February	16	17	[illegible]	February	23	10	35.4
March	2	18	48.0	March	10	22	[illegible]	March	18	4	19.5	March	24	[illegible]	51.5
April	1	11	15.7	April	9	15	[illegible]	April	16	13	17.2	April	23	4	39.7
May	1	3	[illegible]	May	9	4	[illegible]	May	15	20	46.3	May	22	16	26.2
May	30	19	17.4	June	7	13	54.2	June	14	3	53.3	June	21	6	15.7
June	29	9	47.0	July	6	20	23.8	July	13	11	44.1	July	20	22	0.0
July	28	22	49.6	August	5	1	16.2	August	11	21	14.4	August	19	15	21.1
August	27	10	20.9	September	3	6	5.0	September	10	9	3.6	September	18	9	42.5
September	25	20	38.2	October	2	12	23.2	October	9	23	33.7	October	18	4	0.7
October	25	6	19.8	October	31	21	[illegible]	November	8	16	42.9	November	16	20	53.8
November	23	16	11.5	November	30	10	6.3	December	8	11	46.2	December	16	11	13.7
December	23	2	47.0	December	30	2	[illegible]								

APOGEE, PERIGEE, AND GREATEST LIBRATION

Apogee	d	h	Perigee	d	h	Greatest Libration	d	h	m		Greatest Libration	d	h	m	
January	11	5.2	January	24	21.9	January	5	2	43	W.	January	17	15	25	E.
February	8	0.4	February	19	20.4	February	1	10	20	W.	February	14	0	46	E.
March	7	19.4	March	19	19.2	February	27	16	9	W.	March	14	0	12	E.
April	4	9.3	April	17	3.6	March	26	12	11	W.	April	11	4	54	E.
May	1	14.3	May	15	14.1	April	23	9	35	W.	May	9	10	13	E.
May	28	17.7	June	12	22.4	May	21	14	19	W.	June	6	9	48	E.
June	25	5.4	July	11	0.1	June	19	7	8	W.	July	3	17	32	E.
July	22	[illegible]	August	7	3.7	July	16	19	41	W.	July	30	1	32	E.
August	19	16.1	September	1	5.1	August	13	10	52	W.	August	25	16	17	E.
September	16	11.0	September	28	7.3	September	9	8	6	W.	September	22	12	30	E.
October	14	4.9	October	26	[illegible]	October	5	14	7	W.	October	20	14	30	E.
November	10	[illegible]	November	23	21.3	November	1	21	28	W.	November	17	21	37	E.
December	7	17.5	December	22	10.2	November	29	23	17	W.	December	16	4	0	E.
						December	28	6	47	W.					

FORMULÆ FOR THE LIBRATION OF THE MOON

Put I = the inclination of the moon's equator to the ecliptic [illegible]

" [illegible] = the mean longitude of the moon's ascending node (see page [illegible]) or the mean longitude of the descending node of the moon's equator.

" [illegible] = the angle at the centre of the moon's disk made by a lunar meridian with the circle of declination, counted from north to east on the apparent disk.

λ, β, [illegible] = the apparent longitude, latitude, right ascension and declination of the moon, corrected for parallax.

" [illegible] = the selenocentric longitude of the earth, counted on the moon's equator from its descending node [illegible].

[illegible] = the quantities defined on page [illegible], where their values for the year are given.

The [illegible] may then be found for any time by means of the following formulæ in connection with the tables given on pages [illegible] and 377:—

[illegible] $- \lambda$)

[illegible] See table, page 377.

$\tan h = \tan I$ [illegible] $- \lambda$)

[illegible]

The libration in latitude $= b + B - \beta$

The libration in longitude $= l + \lambda - \zeta$

[illegible] $- \Omega$)

MEAN PLACES FOR 1897.0. (January $0^d.0$—$0^d.624$, Washington.)

Name of Star.	Magnitude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
		h m s	s	° ′ ″	″
d Piscium	5.3	0 15 17.828	−0.0001	+ 7 37 5.37	+0.011
45 Piscium	6.9	0 20 23.262	+0.0015	7 7 18.25	−0.053
51 Piscium	5.8	0 27 4.859	+0.0009	6 23 11.61	+0.003
75 Piscium	6.0	1 1 8.496	+0.0014	12 24 14.04	+0.032
101 Piscium	6.3	1 30 15.910	−0.0005	14 8 5.31	−0.015
103 Piscium	6.8	1 33 42.081	−0.0014	+16 6 10.11	−0.026
105 Piscium	6.3	1 34 7.305	+0.0040	15 52 59.73	−0.011
3 Arietis	6.0	1 40 59.649	+0.0014	16 53 47.34	−0.014
4 Arietis	5.7	1 42 35.635	+0.0024	16 26 34.23	−0.021
ι Arietis	5.7	1 51 43.350	+0.0020	17 18 52.11	−0.032
15 Arietis	5.7	2 4 54.992	+0.0056	+19 0 51.16	−0.038
B. A. C. 686 . . .	7.2	2 8 8.791	+0.0011	19 7 54.76	0.000
θ Arietis	5.7	2 12 23.700	−0.0012	19 25 28.34	−0.008
23 Arietis	7.5	2 13 25.058	−0.0018	19 12 58.72	−0.116
26 Arietis	6.0	2 24 51.734	+0.0047	19 23 52.88	−0.032
ν Arietis	5.7	2 32 57.972	−0.0008	+21 30 58.23	−0.012
μ Arietis	6.0	2 36 33.460	+0.0018	19 34 20.65	−0.055
64 Arietis	5.7	3 18 13.419	+0.0003	24 21 32.55	−0.056
66 Arietis	6.0	3 22 25.217	−0.0002	22 26 55.80	−0.124
7 Tauri	6.0	3 28 20.535	+0.0006	24 7 7.08	−0.043
9 Tauri	7.0	3 30 54.546	−0.0011	+22 52 11.76	−0.053
11 Tauri	6.7	3 34 37.109	+0.0004	24 59 46.30	−0.021
g Pleiadum . . .	6.3	3 38 40.764	+0.0009	23 57 54.82	−0.059
17 Tauri	4.3	3 38 45.460	+0.0009	23 47 21.29	−0.059
18 Tauri	6.3	3 39 0.970	+0.0009	24 30 56.62	−0.059
19 Tauri	5.0	3 39 4.523	+0.0009	+24 8 37.77	−0.059
20 Tauri	5.0	3 39 41.765	+0.0009	24 2 44.32	−0.059
21 Tauri	7.0	3 39 46.224	+0.0009	24 13 57.38	−0.059
22 Tauri	7.0	3 39 54.761	+0.0009	24 12 21.60	−0.059
23 Tauri	4.7	3 40 12.678	+0.0009	23 37 38.20	−0.059
26 Tauri	7.0	3 42 49.669	+0.0009	+23 32 28.24	−0.059
27 Tauri	4.0	3 43 2.162	+0.0009	23 44 17.83	−0.059
28 Tauri	6.2	3 43 3.420	+0.0009	23 49 17.99	−0.059
B. A. C. 1192 . .	6.0	3 44 7.127	−0.0021	25 16 4.00	−0.153
36 Tauri	6.0	3 58 12.019	0.0000	23 49 19.61	−0.024
p Tauri	6.0	4 4 33.433	−0.0027	+26 12 43.06	−0.048
φ Tauri	5.3	4 14 1.158	−0.0012	27 6 15.01	−0.084
χ Tauri	5.7	4 16 18.874	+0.0032	25 23 9.88	−0.037
118 Tauri	5.7	5 22 56.165	+0.0011	25 4 0.81	−0.030
125 Tauri	6.0	5 33 21.135	+0.0004	25 50 20.97	−0.031
136 Tauri	5.3	5 46 51.242	+0.0007	+27 35 16.00	−0.011
139 Tauri	5.3	5 51 36.190	−0.0004	25 56 27.40	−0.002
37 Geminorum . . .	6.3	6 48 58.728	−0.0030	25 30 14.50	−0.001
39 Geminorum . . .	6.3	6 52 26.583	−0.0126	26 12 57.68	+0.071
40 Geminorum . . .	6.3	6 53 6.423	−0.0013	26 3 13.07	−0.028
ω Geminorum . . .	5.7	6 56 8.282	−0.0011	+24 21 42.96	−0.021

MEAN PLACES FOR 1897.0 (January 0d.0 = 0d.624, Washington.)

Name of Star	Magnitude	Right Ascension	Annual Proper Motion	Declination	Annual Proper Motion
		h m s	s	° ′ ″	″
48 Geminorum . . .	6.0	7 6 10.975	−0.0013	+24 18 2.50	0.049
49 Geminorum . . .	7.2	7 6 29.338	−0.0012	25 55 11.10	−0.046
B A C 2363 . .	7.3	7 8 9.358	0.0031	24 53 10.4	.
52 Geminorum . . .	6.3	7 8 24.111	+0.0040	25 3 48.01	−0.108
A Geminorum . . .	5.7	7 17 11.827	−0.0036	25 14 53.43	−0.036
58 Geminorum . . .	6.3	7 17 16.834	−0.0030	+23 8 36.53	−0.045
κ Geminorum . . .	3.7	7 38 13.813	−0.0024	24 38 40.86	[illegible]
82 Geminorum . . .	6.3	7 42 24.028	−0.0025	23 23 44.41	[illegible]
84 Geminorum . . .	6.8	7 46 54.015	−0.0024	22 35 56.50	0.019
7 Cancri	6.3	7 57 45.606	−0.0042	22 21 34.08	0.007
ρ1 Cancri	6.3	8 0 12.178	0.0021	+22 55 45.30	−0.006
ψ Cancri	5.7	8 1 42.254	+0.0015	21 52 50.35	0.078
B A C 2788 . .	6.0	8 14 20.511	+0.0036	21 4 21.01	−0.052
d Cancri	6.0	8 17 27.903	−0.0048	18 39 46.20	−0.025
θ Cancri	5.7	8 25 43.405	−0.0050	18 26 32.32	0.068
35 Cancri	6.3	8 29 24.165	−0.0044	+19 56 38.28	0.014
B A C 2899 . .	7.2	8 31 52.425	−0.0062	19 37 35.87	+0.036
38 Cancri	7.0	8 33 47.659	−0.0030	20 8 29.70	+0.013
B A C 2914 . .	7.2	8 33 56.250	−0.0024	19 54 11.77	0.037
39 Cancri	7.0	8 34 10.925	−0.0051	20 22 16.73	0.010
40 Cancri	7.3	8 34 16.081	−0.0030	+20 20 6.03	+0.001
B A C 2919 . .	7.3	8 34 27.380	0.0026	20 1 59.52	[illegible]
ε Cancri	7.2	8 34 32.483	[illegible]	19 54 32.12	0.013
θ Cancri	7.1	8 34 48.591	+[illegible]10	20 5 2.55	[illegible]
B A C 2931 . .	7.5	8 35 55.149	0.0043	20 14 27.92	−0.029
δ Cancri	4.0	8 38 49.038	−0.0014	+18 31 57.98	0.233
54 Cancri	6.3	8 45 17.272	[illegible]	15 43 56.22	[illegible]
σ1 Cancri	5.7	8 51 31.311	[illegible]	15 43 3.77	+0.018
σ2 Cancri	6.0	8 52 5 [illegible]	[illegible]	15 58 35.96	+0.022
68 Cancri	7.5	8 55 56.842	−0.0021	17 2[illegible] 6.24	[illegible]
B A C 3103 . .	7.5	9 0 29.203	[illegible]	+17 31 36.5	. . . .
[illegible] Cancri	6.3	9 6 3[illegible].174	[illegible]	15 24 38.94	+0.216
[illegible] Cancri	[illegible]	9 9 32.753	[illegible]	15 22 7.8[illegible]	[illegible]
7 Leonis	6.3	9 3[illegible] 15.218	[illegible]	14 50 20.55	[illegible]
11 Leonis	6.8	9 32 24.112	[illegible]	14 48 45.5[illegible]	−0.07[illegible]
[illegible] Leonis	6.0	9 38 7.3[illegible]	[illegible]	+14 2[illegible] 33.35	0.017
18 Leonis	[illegible]	9 4[illegible] 5 4[illegible]	[illegible]	12 17 [illegible]	[illegible]
[illegible] Leonis	[illegible]	9 4[illegible] [illegible]	[illegible]	12 2 4[illegible]	+0.015
[illegible] Leonis	[illegible]	9 45 [illegible]	[illegible]	12 1[illegible] [illegible]	[illegible]
23 Leonis	6.3	9 45 27.[illegible]	[illegible]	13 32 [illegible]	[illegible]
[illegible] Leonis	5.[illegible]	9 52 40.[illegible]	[illegible]	+12 5[illegible] [illegible] 44	[illegible]
A Leonis	4.7	10 2 [illegible]	[illegible]	[illegible]	[illegible]
43 Leonis	6.5	10 17 [illegible]	[illegible]	7 [illegible] 14	[illegible]
44 Leonis	[illegible]	10 1[illegible] [illegible]	[illegible]	9 [illegible]	0.044
48 Leonis	5.5	10 2[illegible] 25.[illegible]	[illegible]	7 2[illegible] [illegible]	[illegible]
34 Sextantis . . .	6.[illegible]	10 37 18.355	[illegible]	+4 7 [illegible]	+0.016

MEAN PLACES FOR 1897.0. (January $0^d.0$—$0^d.624$, Washington.)

Name of Star.		Magnitude.	Right Ascension.	Annual Proper Motion.	Declination.	Annual Proper Motion.
			h m s	s	° ′ ″	″
35	Sextantis	6.2	10 37 59.382	−0.0045	+ 5 17 11.88	−0.067
37	Sextantis	6.3	10 40 43.996	+0.0003	6 54 57.22	−0.038
d	Leonis	5.3	10 55 14.451	−0.0006	4 10 13.10	−0.028
p^5	Leonis	5.7	11 8 29.264	−0.0026	0 29 26.61	−0.012
75	Leonis	5.7	11 11 59.400	+0.0021	2 34 35.54	−0.164
76	Leonis	6.3	11 13 37.713	−0.0045	+ 2 12 53.83	−0.066
79	Leonis	6.0	11 18 45.176	−0.0025	+ 1 58 21.99	−0.012
e	Leonis	5.3	11 25 3.112	+0.0009	− 2 26 6.80	−0.013
	B. A. C. 4006	6.1	11 45 46.438	+0.0029	4 45 38.94	−0.023
q	Virginis	5.7	12 28 27.696	−0.0070	8 53 2.87	−0.014
χ	Virginis	5.2	12 33 55.742	−0.0058	− 7 25 44.30	−0.043
ψ	Virginis	5.2	12 48 59.714	−0.0026	8 58 47.02	−0.034
69	Virginis	5.0	13 21 57.403	−0.0096	15 26 23.69	−0.003
75	Virginis	6.0	13 27 21.488	−0.0029	14 49 59.70	−0.012
83	Virginis	6.0	13 38 56.364	+0.0006	15 39 41.00	−0.031
85	Virginis	6.5	13 40 2.172	−0.0051	−15 14 59.96	−0.043
87	Virginis	5.8	13 41 49.117	+0.0021	17 20 38.97	−0.048
89	Virginis	5.4	13 44 16.438	−0.0079	17 37 16.51	−0.051
	B. A. C. 4722	5.8	14 9 43.493	−0.0027	17 43 12.78	−0.015
	B. A. C. 4923	7.3	14 51 26.6	+0.0691	20 56 56.31	−1.646
42	Libræ	5.7	15 34 11.472	−0.0023	−23 28 59.59	−0.033
b	Scorpii	5.3	15 44 46.828	−0.0053	25 26 18.18	−0.061
A^2	Scorpii	5.2	15 47 25.541	−0.0037	25 1 10.79	−0.039
	B. A. C. 5253	5.8	15 47 44.664	−0.0023	24 13 33.55	−0.030
	B. A. C. 5254	5.8	15 47 47.946	−0.0031	23 40 15.37	−0.017
3	Scorpii	6.7	15 48 28.443	−0.0023	−24 56 17.07	−0.028
4	Scorpii	6.3	15 49 16.563	−0.0035	25 57 44.69	−0.037
π	Scorpii	3.4	15 52 37.171	−0.0019	25 49 2.72	−0.045
	B. A. C. 5314	5.7	15 57 7.130	−0.0032	25 34 39.61	−0.028
	B. A. C. 5347	6.0	16 1 50.917	+0.0079	26 2 58.21	+0.114
σ	Scorpii	3.4	16 14 55.560	−0.0022	−25 20 43.69	−0.026
22	Scorpii	5.5	16 23 56.929	−0.0011	24 53 18.71	−0.038
25	Scorpii	7.0	16 40 32.978	−0.0004	25 20 26.24	−0.004
31	Ophiuchi	6.7	16 58 23.339	+0.0001	25 29 53.13	−0.084
	B. A. C. 5800	7.5	17 7 49.325	−0.0020	26 51 40.46	−0.104
A	Ophiuchi	4.9	17 9 0.867	−0.0364	−26 27 4.36	−1.156
	B. A. C. 5813	6.8	17 9 53.369	−0.0360	26 23 54.06	−1.158
38	Ophiuchi	6.7	17 11 15.128	−0.0062	26 30 56.62	−0.074
43	Ophiuchi	5.8	17 16 52.580	−0.0013	28 2 34.75	−0.065
3	Sagittarii	4–6	17 41 4.556	−0.0022	27 47 29.51	−0.030
63	Ophiuchi	6.6	17 48 33.742	−0.0004	−24 51 58.27	+0.002
	B. A. C. 6194	5.1	18 11 36.115	−0.0086	27 4 45.12	+0.030
	B. A. C. 6304	7.0	18 26 56.555	−0.0014	24 11 4.41	−0.021
24	Sagittarii	5.9	18 27 35.952	−0.0012	24 6 31.08	−0.009
25	Sagittarii	6.3	18 28 14.987	+0.0049	24 18 1.22	+0.009
26	Sagittarii	6.6	18 35 34.670	+0.0012	−23 55 45.06	−0.030

MEAN PLACES FOR 1897.0 (January $0^d.0 - 0^d.624$, Washington)

Name of Star	Magnitude	Right Ascension	Annual Proper Motion	Declination	Annual Proper Motion
		h m s	s	° ′ ″	″
B. A. C. 6369 . .	6.2	18 38 29.655	−0.0011	−25 6 49.31	−0.010
φ Sagittarii . . .	3.7	18 39 13.209	+0.0014	27 5 48.10	−0.026
ψ Sagittarii . . .	5.4	19 9 13.4·3	+0.0014	25 26 2.75	−0.041
B. A. C. 6607 . .	5.9	19 14 27.552	−0.0009	22 35 39.79	−0.020
χ^1 Sagittarii . . .	5.4	19 19 0.474	+0.0030	24 42 30.16	−0.018
χ^2 Sagittarii . . .	6.3	19 19 7.020	+0.0011	−24 36 52.10	−0.057
χ^3 Sagittarii . . .	5.6	19 19 15.634	−0.0025	24 9 50.41	−0.017
A^1 Sagittarii . . .	5½–6½	19 29 46.455	+0.0001	24 56 40.30	−0.023
A^2 Sagittarii . . .	4.7	19 30 26.364	+0.0037	25 6 38.71	−0.027
53 Sagittarii . . .	6.7	19 33 38.000	−0.0024	23 39 43.68	−0.032
B. A. C. 6727 . .	6.2	19 33 55.650	+0.0011	23 39 52.55	−0.015
4 Capricorni . . .	6.1	20 11 58.321	+0.0007	22 7 40.78	−0.038
σ Capricorni . . .	5.6	20 13 27.067	−0.0004	19 26 23.66	−0.008
ρ Capricorni . . .	5.3	20 22 59.186	−0.0013	18 9 14.66	−0.020
B. A. C. 7044 . .	7.0	20 23 7.701	+0.0007	18 12 48.80	−0.148
ο Capricorni . . .	6.2	20 23 59.631	+0.0001	−18 55 26.41	−0.083
υ Capricorni . . .	5.7	20 34 11.226	−0.0001	18 30 3.61	−0.002
19 Capricorni . . .	6.1	20 48 58.649	−0.0051	18 18 48.08	−0.017
B. A. C. 7263 . .	5.9	20 51 54.651	+0.0046	16 25 41.52	−0.029
21 Capricorni . . .	6.4	20 55 3.989	0.0030	17 55 56.07	+0.001
θ Capricorni . . .	4.1	21 0 9.514	+0.0047	−17 38 32.03	−0.075
29 Capricorni . . .	5.7	21 10 2.860	+0.0016	15 35 58.01	−0.003
18 Aquarii . . .	5.7	21 18 33.900	+0.0061	13 19 12.83	−0.008
42 Capricorni . . .	5.6	21 35 56.910	0.0090	14 30 24.20	−0.304
λ Capricorni . . .	5.7	21 40 59.472	+0.0009	11 50 28.09	−0.022
50 Capricorni . . .	6.9	21 41 8.981	+0.0009	−12 10 11.50	−0.141
36 Aquarii . . .	6.3	22 4 0.066	+0.0021	8 41 31.40	+0.045
σ^2 Aquarii . . .	6.8	22 5 2.244	+0.0008	11 19 37.15	+0.040
B. A. C. 7774 . .	6.4	22 11 26.245	−0.0021	9 33 12.64	−0.011
ρ Aquarii . . .	5.6	22 14 46.804	+0.0006	8 20 17.69	−0.008
B. A. C. 7804 . .	6.2	22 18 8.2	. . .	− 7 42 52.3	. . .
ι Aquarii . . .	5.2	22 32 25.390	−0.0030	4 45 33.50	−0.122
67 Aquarii . . .	6.4	22 37 51.453	−0.0017	7 30 6.00	+0.005
B. A. C. 7951 (*mean*) .	6.7	22 42 31.405	−0.0190	4 45 47.33	−0.286
B. A. C. 7986 . .	5.9	22 49 50.497	+0.0024	5 32 10.58	+0.003
B. A. C. 7993 . .	6.6	22 51 57.253	−0.0030	− 5 21 38.25	−0.001
B. A. C. 8017 . .	6.1	22 56 11.8	. . .	− 5 15 58.0	. . .
κ Piscium . . .	4.7	23 21 39.119	+0.0046	+ 0 41 29.39	−0.111
9 Piscium . . .	6.6	23 21 58.262	+0.0032	+ 0 33 23.00	−0.051
12 Piscium . . .	6.8	23 24 13.474	−0.0010	− 1 36 8.11	−0.010
15 Piscium . . .	6.6	23 30 12.461	−0.0077	+ 0 44 38.34	−0.041
16 Piscium . . .	5.8	23 31 7.917	−0.0080	1 31 50.18	+0.036
λ Piscium . . .	4.5	23 36 47.444	−0.0098	1 12 46.79	−0.173
19 Piscium . . .	4.9	23 41 7.650	−0.0030	2 54 55.06	−0.032
22 Piscium . . .	5.0	23 46 41.394	−0.0008	2 21 27.89	−0.020
25 Piscium . . .	6.4	23 47 48.227	+0.0001	+ 1 31 3.56	−0.016

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
				NEW	*MOON.*						
Mercury				−20 30.5	4 0 34.4	− 0 52.3	+0.1373	0.5075	+0.1692	+30	−35
19 Capricorni	6.1	−0.28	− 6.2	18 18.9	11 12.8	+ 9 23.9	−0.0418	0.5456	0.2063	+32	−46
21 Capricorni	6.4	0.26	6.0	17 56.0	13 59.4	−11 55.2	+0.1387	0.5430	0.2104	+43	−36
θ Capricorni	4.1	0.24	5.8	17 38.6	16 19.9	− 9 39.3	+0.3334	0.5415	0.2143	+53	−25
29 Capricorni	5.7	−0.21	− 5.4	−15 36.1	20 55.9	− 5 12.4	−0.8104	0.5366	+0.2199	− 6	−90
42 Capricorni	5.6	0.13	4.8	14 30.5	5 9 19.5	+ 6 47.3	+0.8539	0.5256	0.2337	+75	+ 3
50 Capricorni	6.9	0.12	4.2	12 10.3	11 52.3	+ 9 15.3	−1.0178	0.5235	0.2361	−16	−90
σ^1 Aquarii	6.8	0.03	3.5	11 19.3	23 49.7	− 3 9.2	+0.9718	0.5144	0.2453	+79	+10
B. A. C. 7774	6.4	0.02	2.9	9 33.3	6 3 5.8	+ 0 1.0	−0.[illegible]155	0.5122	0.2473	+35	−49
ρ Aquarii	5.6	−0.01	− 2.5	− 8 20.3	4 49.1	+ 1 41.2	−0.9861	0.5110	+0.2483	−12	−90
B. A. C. 7804	6.2	0.00	2.3	7 41.9	6 33.1	+ 3 22.2	−1.2400	0.5091	0.2493	−31	−90
67 Aquarii	6.4	+0.08	1.6	7 30.1	16 53.0	−10 36.0	+1.1477	0.5038	0.2534	+82	+21
B. A. C. 7951	6.7	0.08	0.8	4 45.8	19 21.8	− 8 11.4	−1.1669	0.5025	0.2542	−23	−90
B. A. C. 7986	5.9	0.12	0.8	5 32.2	23 16.4	− 4 23.5	+0.6609	0.5006	0.2551	+84	− 9
B. A. C. 7993	6.6	+0.13	− 0.7	− 5 21.6	7 0 24.3	− 3 17.5	+0.7606	0.5001	+0.2553	+80	− 4
B. A. C. 8017	6.1	0.15	− 0.6	5 16.0	2 41.4	− 1 4.3	+1.2439	0.4990	0.2557	+85	+29
12 Piscium	6.8	0.26	+ 1.2	− 1 36.1	17 58.7	−10 12.4	+1.1993	0.4937	0.2561	+88	+25
15 Piscium	6.6	0.26	2.4	+ 0 44.7	21 16.6	− 7 0.0	−0.5088	0.4929	0.2558	+17	−73
16 Piscium	5.8	0.26	2.6	1 31.9	21 47.2	− 6 30.2	−1.2350	0.4928	0.2556	−28	−88
λ Piscium	4.5	+0.29	+ 2.5	+ 1 12.8	8 0 55.0	− 3 27.6	−0.0905	0.4921	+0.2551	+38	−48
19 Piscium	4.9	0.30	3.3	2 55.0	3 19.2	− 1 7.4	+1.3355	0.4917	0.2547	−39	−87
22 Piscium	5.0	0.34	3.3	2 21.5	6 24.4	+ 1 52.8	+0.0572	0.4913	0.2538	+46	−40
25 Piscium	6.4	0.35	3.0	1 31.1	7 1.5	+ 2 28.9	+1.1322	0.4913	0.2537	+90	+20
45 Piscium	6.9	0.49	5.7	7 7.4	9 1 9.8	− 3 52.4	−0.4676	0.4907	0.2464	+19	−50
51 Piscium	5.8	+0.53	+ 5.6	+ 6 23.3	4 53.0	− 0 15.3	+1.2540	0.4910	+0.2449	+90	+33
75 Piscium	6.0	0.69	8.5	12 24.4	23 40.4	− 5 58.8	−0.9070	0.4948	0.2311	− 6	−78
η Piscium	3.7	0.83	9.7	14 49.1	10 13 7.7	+ 7 5.8	−0.5456	0.4995	0.2188	+15	−68
101 Piscium	6.3	0.86	9.6	14 8.2	15 25.8	+ 9 19.9	+0.7105	0.5004	0.2160	+90	0
103 Piscium	6.8	0.87	10.3	16 6.3	17 15.8	+11 6.8	−1.0758	0.5012	0.2143	−18	−74
105 Piscium	6.3	+0.88	+10.2	+15 53.2	17 29.2	+11 19.9	−0.7850	0.5014	+0.2140	+ 1	−67
3 Arietis	6.0	0.92	10.7	16 54.0	21 8.1	− 9 7.5	−1.1330	0.5029	0.2100	−23	−73
4 Arietis	5.7	0.93	10.6	16 26.6	21 58.9	− 8 18.2	−0.4534	0.5034	0.2090	+19	−61
ι Arietis	5.7	0.98	10.9	17 19.0	11 2 47.0	− 3 38.3	−0.4283	0.5058	0.2033	+20	−59
15 Arietis	5.7	1.06	11.6	19 1.0	9 38.5	+ 3 1.1	−0.9447	0.5094	0.1946	− 9	−71
B. A. C. 686	7.2	+1.08	+11.6	+19 8.1	11 18.6	+ 4 38.3	−0.7521	0.5103	+0.1924	+ 2	−69
θ Arietis	5.7	1.11	11.7	19 25.7	13 29.2	+ 6 44.9	−0.6004	0.5116	0.1894	+ 8	−70
23 Arietis	7.5	1.12	11.7	19 13.2	14 0.6	+ 7 15.4	−0.3311	0.5119	0.1887	+25	−52
26 Arietis	6.0	1.19	11.7	19 24.1	19 49.4	−11 6.4	+0.5403	0.5153	0.1803	+78	− 5
ν Arietis	5.7	1.25	12.5	21 31.2	23 53.3	− 7 9.9	−1.0819	0.5178	0.1740	−21	−68
ε Arietis	4.6	+1.38	+12.2	+20 55.9	12 9 56.9	+ 2 35.0	+1.2369	0.5242	+0.1576	+90	+44
64 Arietis	5.7	1.56	12.8	24 21.8	21 55.5	− 9 49.3	−0.7885	0.5322	0.1357	− 1	−66
7 Tauri	6.0	1.62	12.6	24 7.3	13 2 41.5	− 5 12.7	+0.1013	0.5353	0.1263	+49	−21
11 Tauri	6.7	1.68	12.7	25 0.0	5 37.6	− 2 22.4	−0.5015	0.5372	0.1204	+11	−53
ξ Pleiadum	6.3	1.70	12.3	23 58.1	7 30.7	− 0 33.1	+0.8549	0.5385	0.1165	+90	+21
17 Tauri	4.3	+1.70	+12.2	+23 47.6	7 32.8	− 0 31.1	+1.0521	0.5385	+0.1164	+90	+33
18 Tauri	6.3	1.71	12.4	24 31.2	7 40.0	− 0 24.0	+0.2680	0.5386	0.1162	+60	−12
19 Tauri	5.0	1.70	12.3	24 8.8	7 41.7	− 0 22.4	+0.6798	0.5386	0.1161	+90	+10
20 Tauri	5.0	1.71	12.3	24 2.9	7 58.9	− 0 5.8	+0.8209	0.5388	0.1155	+90	+18
21 Tauri	7.0	1.71	12.3	24 14.2	8 1.0	− 0 3.8	+0.6195	0.5388	0.1155	+88	+ 7
22 Tauri	7.0	+1.71	+12.3	+24 12.6	8 4.9	0 0.0	+0.6560	0.5388	+0.1153	+90	+ 9
η Tauri	3.1	1.72	12.2	23 47.4	8 45.1	+ 0 38.8	+1.1938	0.5393	0.1139	+90	+46
28 Tauri	6.2	1.72	12.1	23 49.5	9 32.1	+ 1 34.3	+1.2434	0.5398	0.1122	+90	+52
B. A. C. 1192	6.0	1.74	12.3	25 16.3	10 1.4	+ 1 52.6	−0.2903	0.5401	0.1112	+27	−40
ρ Tauri	6.0	1.88	12.2	26 12.9	19 20.6	+10 52.9	−0.3797	0.5460	0.0907	+22	−43
φ Tauri	5.3	+1.95	+12.1	+27 6.5	23 35.7	− 9 0.7	−0.9934	0.5484	+0.0810	−17	−63

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0 $\Delta\alpha$	Red'ns from 1897.0 $\Delta\delta$	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	$N.$	$S.$
		s	"	° '	d h m	h m				°	°
1 Tauri	5.7	+1.94	+11.6	+25 23.4	14 0 37.2	8 1.3	+0.9601	0.5421	+0.0785	+90	+31
β Tauri	1.8	2.33	9.5	28 31.4	15 4 16.8	5 20.7	-1.2[illegible]	0.5619	+0.0092	41	61
136 Tauri	5.5	2.44	7.7	27 35.4	15 47.6	+5 44.3	-0.8[illegible]	0.5647	0.0215	+28	31
ι Geminorum	3.8	2.57	4.1	25 14.0	16 13 12.5	+2 23.0	+1.1726	0.5759	0.0780	+90	+48
57 Geminorum	6.3	2.60	3.4	25 30.3	18 1.5	+7 1.1	+0.4724	0.5754	0.0915	+75	+2
59 Geminorum	6.3	+2.63	+3.3	+26 13.0	19 29.5	+8 25.9	0.4221	0.5652	0.0951	+20	46
60 Geminorum	6.3	2.63	3.2	26 3.3	19 46.3	+8 42.0	0.2760	0.5651	0.0960	+28	17
68 Geminorum	6.0	2.60	2.2	24 18.1	17 1 19.2	-9 57.3	+1.0126	0.5641	0.1102	+90	+32
69 Geminorum	7.2	2.64	2.2	25 55.2	1 27.0	-9 40.8	0.7157	0.5641	0.1105	+2	64
B A C 2563	7.3	2.63	2.1	24 53.2	2 9.5	9 8.8	+0.2953	0.5639	0.1123	+62	9
72 Geminorum	6.3	+2.64	+2.0	+25 3.8	2 15.8	-9 2.7	+0.0960	0.5[illegible]	0.1125	+49	19
A Geminorum	5.7	2.65	+1.5	25 14.9	6 0.6	-5 26.1	-0.5158	0.5[illegible]	0.1219	+23	-55
a Geminorum	5.7	2.66	0.1	24 58.7	15 2.7	+5 15.5	1.0220	0.5611	0.1490	-23	65
81 Geminorum	6.3	2.64	0.4	21 21.7	16 49.6	+4 59.5	0.0154	0.5595	0.1475	+41	50
84 Geminorum	6.8	2.63	0.8	22 35.9	18 46.3	+6 52.0	+0.5481	0.5585	0.1523	+77	3
7 Cancri	6.3	+2.63	1.5	+22 21.5	23 29.2	+11 24.8	+0.0167	0.5574	0.1629	+44	29
ρ Cancri	6.5	2.64	1.7	22 55.7	18 0 33.0	11 11.6	0.7550	0.5571	0.1651	1	67
ρ² Cancri	5.7	2.62	1.8	21 52.8	1 12.3	-10 55.7	+0.2901	0.5568	0.1666	+57	18
B A C 2858	6.0	2.60	2.6	21 4.3	6 44.6	-5 35.1	+0.1278	0.5546	0.1783	+51	24
θ Cancri	5.4	2.59	3.5	20 47.4	12 13.7	-0 17.6	0.5855	0.5521	0.1893	+12	64
35 Cancri	6.3	+2.58	3.6	+19 56.6	13 24.3	+0 50.6	+0.0746	0.5517	0.1916	+47	29
B A C 2899	7.2	2.56	4.0	19 57.5	14 30.2	+1 54.2	+0.1045	0.5511	0.1937	+55	21
38 Cancri	7.0	2.56	4.2	20 8.4	15 21.6	+2 43.8	0.4032	0.5503	0.1955	+16	61
B A C 2914	7.2	2.57	4.2	19 54.1	15 25.4	+2 47.5	0.2729	0.5503	0.1955	+28	48
39 Cancri	7.0	2.57	4.2	20 22.2	15 31.9	+2 55.8	0.7921	0.5508	0.1957	0	70
40 Cancri	7.3	+2.57	4.2	+20 20.0	15 34.2	+2 56.0	0.7519	0.5508	0.1957	+2	-70
B A C 2919	7.3	2.56	4.2	20 1.9	15 39.1	+3 [illegible]	0.4558	0.5508	0.1963	+19	-58
ε Cancri	7.2	2.56	4.2	19 54.5	15 41.5	+3 3.1	0.3313	0.5507	0.1960	+25	51
ε Cancri	7.1	2.56	4.2	20 5.0	15 48.7	+3 10.0	0.5575	0.5506	0.1962	+14	62
B A C 2932	7.5	2.56	4.3	20 14.4	16 18.4	+3 38.7	0.7084	0.5506	0.1971	1	70
δ Cancri	4.0	+2.53	4.4	+18 31.9	17 56.5	+4 54.1	+0.7244	0.5500	0.1996	+90	+4
66 Cancri	7.5	2.49	5.4	17 29.0	19 1 18.7	11 19.6	+0.2255	0.5467	0.2131	+55	22
B A C 3105	7.5	2.49	5.7	17 31.5	3 22.2	-9 40.3	0.2622	0.5457	0.2165	+29	49
σ¹ Cancri	6.3	2.44	5.9	15 24.5	6 10.7	-6 57.6	+1.3120	0.5445	0.2210	+90	+47
σ² Cancri	6.0	2.44	6.1	15 22.0	7 29.9	-5 41.0	+1.0969	0.5432	0.2231	+90	+23
7 Leonis	6.3	+2.39	7.3	+14 30.2	17 2.0	+3 31.9	0.5771	0.5400	0.2360	+13	70
11 Leonis	6.8	2.39	7.4	14 48.6	18 1.8	+4 29.8	0.7962	0.5396	0.2380	+1	68
ψ Leonis	6.0	2.37	7.7	14 29.4	20 41.4	+7 4.2	-1.0925	0.5385	0.2414	19	76
18 Leonis	6.0	2.34	7.5	12 16.9	21 57.4	+8 17.6	+0.8[illegible]	0.5381	0.2422	+90	+19
19 Leonis	6.0	2.32	7.9	12 2.6	22 27.0	+8 46.2	+1.0064	0.5372	0.2435	+90	+15
21 Leonis	6.8	+2.32	7.8	+12 29.3	20 0 2.0	+10 18.0	+0.3318	0.5376	0.2454	+62	22
23 Leonis	6.3	2.34	8.3	13 32.7	0 7.1	+10 22.0	0.9512	0.5373	0.2455	9	76
ν Leonis	5.5	2.31	8.3	12 56.0	3 50.3	-10 20.5	1.1579	[illegible]	0.2491	23	77
A Leonis	4.7	2.25	8.4	10 50.0	8 6.2	-5 33.6	+0.1899	0.5346	0.2540	+54	11
44 Leonis	6.0	2.18	9.0	9 28.3	16 21.4	+2 5.6	0.7104	0.5322	0.2611	+6	81
48 Leonis	5.5	+2.12	9.2	+7 26.2	20 56.3	+6 32.6	0.0440	0.5311	0.2646	+42	44
15 Sextantis	6.2	2.05	9.2	5 17.0	21 1 2.5	+10 50.0	+1.1[illegible]	0.5291	0.2[illegible]	+90	+19
17 Sextantis	6.3	2.0[illegible]	9.7	6 54.9	2 21.5	+11 46.5	[illegible]	[illegible]	[illegible]	5	81
ι Leonis	5.3	1.98	9.7	4 10.1	9 20.0	5 28.4	[illegible]	0.5231	0.2722	+44	41
ρ¹ Leonis	6.2	1.94	9.6	2 50.7	12 25.1	2 29.2	+0.8745	0.5255	0.2723	+90	+3
75 Leonis	5.7	+1.90	10.0	+2 34.4	17 24.3	+2 20.5	0.5108	0.5280	0.2790	+15	[illegible]
76 Leonis	6.3	1.85	10.0	2 11.7	18 11.7	+3 6.4	[illegible]	[illegible]	0.2719	+23	66
79 Leonis	6.0	1.97	10.1	+1 58.2	20 40.0	+5 29.3	[illegible]	[illegible]	0.2741	0	88
σ Leonis	4.4	1.80	9.9	0 25.5	22 2 55.6	+11 38.6	[illegible]	[illegible]	0.2745	+90	49
ν Virginis	5.7	1.49	9.0	8 33.2	23 5 50.1	10 15.2	+1.1542	0.5344	0.2654	+81	+22
2 Virginis	5.2	+1.48	9.5	-7 25.9	8 33.2	7 46.1	1.0018	0.5355	0.2650	-22	90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JANUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m				°	°
ψ Virginis	5.2	+1.40	-9.3	- 8 59.1	23 15 34.6	- 0 58.6	-1.2600	0.5382	-0.2579	-34	-90
75 Virginis	6.0	1.20	8.1	14 49.1	24 9 4.6	- 8 4.2	+0.3198	0.5472	0.2384	+55	-26
83 Virginis	6.0	1.14	7.8	15 39.8	14 14.2	- 3 5.3	-0.0531	0.5502	0.2312	+34	-46
85 Virginis	6.5	1.14	8.0	15 15.1	14 43.4	- 2 37.1	-0.5820	0.5506	0.2308	+ 7	-81
B. A. C. 4722	5.8	1.00	7.4	17 43.3	25 3 40.0	+ 9 53.0	-0.9295	0.5590	0.2092	-16	-90
42 Libræ	5.7	+0.61	-6.2	-23 29.1	26 14 28.1	- 4 38.7	-1.0878	0.5820	-0.1307	-36	-90
b Scorpii	5.3	0.57	5.6	25 26.4	18 39.2	- 0 37.5	+0.3745	0.5843	0.1210	+45	-22
A² Scorpii	5.2	0.56	5.7	25 1.3	19 41.6	+ 0 22.4	-0.1736	0.5847	0.1164	+15	-54
B. A. C. 5253	5.8	0.56	6.0	24 13.7	19 49.1	+ 0 29.7	-0.9940	0.5848	0.1161	-30	-90
3 Scorpii	6.7	0.55	5.8	24 56.4	20 6.3	+ 0 46.2	-0.3041	0.5849	0.1153	+ 9	-62
4 Scorpii	6.3	+0.54	-5.4	-25 57.8	20 25.1	+ 1 4.2	+0.7001	0.5851	-0.1144	+63	- 3
π Scorpii	3.4	0.53	5.5	25 49.1	21 43.8	+ 2 19.8	+0.4052	0.5857	0.1107	+46	-21
B. A. C. 5314	5.7	0.52	5.6	25 34.8	23 29.3	+ 4 1.1	-0.0286	0.5866	0.1058	+22	-45
B. A. C. 5347	6.0	0.50	5.5	26 3.1	27 1 20.0	+ 5 47.3	+0.2604	0.5875	0.1005	+37	-28
σ Scorpii	3.4	0.45	5.8	25 20.8	6 24.3	+10 39.4	-0.9278	0.5896	0.0898	-29	-90
α Scorpii	1.2	+0.42	-5.5	-26 12.3	9 33.3	-10 19.3	-0.3108	0.5908	-0.0764	+ 5	-62
B. A. C. 5800	7.5	0.26	5.6	26 51.8	28 2 39.9	+ 6 5 4	-0.5025	0.5944	0.0238	-10	-78
A Ophiuchi	4.9	0.26	5.7	26 27.2	3 7.2	+ 6 31.6	-0.9313	0.5944	0.0223	-34	-90
B. A. C. 5813	6.8	0.26	5.7	26 24.0	3 27.2	+ 6 50 8	-0.9925	0.5945	0.0213	-39	-90
38 Ophiuchi	6.7	0.25	5.6	26 31.0	3 58.3	+ 7 20.6	-0.8835	0.5945	0.0197	-23	-90
43 Ophiuchi	5.8	+0 23	-5.2	-28 2.7	6 6.8	+ 9 23.8	+0.6397	0.5945	-0.0129	+54	- 6
3 Sagittarii	4-6	0.17	5.5	27 47.6	15 20.6	- 5 45.1	+0 3909	0.5937	+0.0160	+37	-21
B. A. C. 6194	5.1	0.09	5.6	27 4.8	29 3 4.0	+ 5 29.7	+0.0691	0.5907	0.0520	+22	-39
B. A. C. 6369	6.2	0.03	6.0	25 6.9	13 32.6	- 8 26.9	-1.2417	0.5860	0.0829	-57	-90
φ Sagittarii	3.7	0.03	5.6	27 5.9	13 49.7	- 8 10.4	+0.8204	0.5858	0.0837	+63	+ 5
σ Sagittarii	2.3	+0.02	-5.7	-26 25.6	17 38.5	- 4 30.6	+0.4700	0.5837	+0.0945	+49	-17
ψ Sagittarii	5.4	-0.02	5.8	25 26.1	30 1 46.6	+ 3 18.5	+0.3101	0.5786	0.1166	+39	-25
χ¹ Sagittarii	5.4	0.02	5.8	24 42.6	5 44.6	+ 7 7.3	+0.0441	0.5758	0.1269	+28	-41
χ² Sagittarii	6.3	0.02	5.8	24 37.0	5 47.3	+ 7 10.0	-0.0472	0.5757	0.1270	+23	-46
χ³ Sagittarii	5.6	0.02	5.9	24 9.9	5 50.8	+ 7 13.3	-0.5051	0.5757	0.1271	0	-77
h¹ Sagittarii	5-7	-0.04	-5.7	-24 56.8	10 9.4	+11 22.1	+0.8731	0.5725	+0.1378	+65	+ 7
h² Sagittarii	4.7	-0.04	-5.7	-25 6.7	10 25.9	+11 38.0	+1.0832	0.5723	+0.1385	+65	+23
				NEW	MOON.						

FEBRUARY.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
67 Aquarii	6.4	+0.01	-2.4	- 7 30.1	2 2 5.5	+ 0 24.4	+1.1971	0.5070	+0.2555	+82	+25
B. A. C. 7951	6.7	0.00	1.9	4 45.8	4 33.1	+ 2 47.8	-1.1091	0.5058	0.2563	-19	-90
B. A. C. 7986	5.9	0 03	1.7	5 32.3	8 25.7	+ 6 33.8	+0.7094	0.5041	0.2575	+84	- 6
B. A. C. 7993	6.6	0.02	-1.7	- 5 21.7	9 33.2	+ 7 39.3	+0.8102	0.5035	0.2575	+69	- 1
9 Piscium	6.6	+0 07	+0.3	+ 0 33.4	4 1 43 2	- 0 38.0	-1.4040	0.4980	+0.2585	-49	-89
12 Piscium	6 8	0.10	-0.1	- 1 36.1	2 56 8	+ 0 33.6	+1.2525	0 4977	0.2584	+88	+30
15 Piscium	6 6	0.09	+0.8	+ 0 44.7	6 12.5	+ 3 43 8	-0.4497	0.4968	0.2580	+20	-70
16 Piscium	5.8	0.09	1.0	1 31.9	6 42.7	+ 4 13 2	-1.1739	0.4968	0.2580	-23	-88
λ Piscium	4.5	0.10	1.1	1 12.8	9 48.5	+ 7 13.8	0 0317	0 4962	0.2574	+42	-45
19 Piscium	4.9	+0.11	+1.5	+ 2 54.9	12 11.1	+ 9 32 5	-1.2721	0 4957	+0.2569	-31	-87
22 Piscium	5.0	0.13	1.7	2 21.5	15 14.2	-11 29.5	+0.1168	0.4953	0.2561	+90	-37
25 Piscium	6.4	0.15	1.5	1 31.1	15 50 9	-10 53 8	+1.1886	0 4951	0.2559	+90	+24
45 Piscium	6 9	0.24	3.8	7 7.4	5 9 47.2	+ 6 32 8	-0.4044	0.4943	0.2482	+22	-65
75 Piscium	6.0	0 38	6.5	12 24 3	6 8 5 6	+ 4 14 2	-0.8437	0.4973	0 2322	- 2	-78
η Piscium	3.7	+0.49	+7.7	+14 49.0	21 27.9	- 6 46 2	-0 4851	0.5013	+0.2193	+28	-65
101 Piscium	6.3	0 52	7 8	14 8 2	23 45 3	- 4 32 7	+0 7656	0 5020	0.2168	+90	+ 2
103 Piscium	6.8	0 53	8.5	16 6.3	7 1 34 8	- 2 46 3	-1 0160	0 5026	0.2148	-14	-74
105 Piscium	6.3	0 54	8.4	15 53 1	1 48 2	- 2 33 3	-0 7256	0 5027	0.2145	+ 5	-74
3 Arietis	6.0	0.57	8.9	16 53 9	5 26 3	+ 0 58.5	-1 0741	0.5041	0.2103	-18	-73
4 Arietis	5.7	+0.58	+8.7	+16 26.7	6 16.9	+ 1 47.6	-0.3954	0.5043	+0.2093	+22	-58

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY

Name	Mag.	Red. to 1897.0 Δα	Red. to 1897.0 Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x′	y′	Limiting Parallels N	Limiting Parallels S
		s	"	° ′	d h m	h m				°	°
ι Arietis	5.7	+0.63	+9.2	+17 19.0	7 11 43	+6 26.7	0.5713	0.5084	+0.2019	+23	96
15 Arietis	5.7	0.70	9.9	19 1.0	17 55.4	10 54.5	0.[illegible]	0.5095	0.1945	6	71
B. A. C. 686	7.2	0.72	10.0	19 8.2	19 18.5	−9 14.1	0.0676	0.5104	0.1922	+6	70
θ Arietis	5.7	0.73	10.2	19 25.6	21 45.9	7 10.6	0.[illegible]	0.5114	0.1891	+22	67
23 Arietis	7.5	0.70	10.2	20 13.2	22 20.9	6 36.5	0.2664	0.5117	0.1883	+29	45
56 Arietis	6.0	+0.83	+10.3	+19 24.2	8 4 6.6	2 1.4	+0.9029	0.5146	+0.1708	+83	3
ν Arietis	5.7	0.88	11.2	21 51.2	8 11.5	+2 56.0	1.0502	0.5168	0.1735	17	68
ε Arietis	4.6	1.00	11.0	20 55.9	18 17.1	11 17.0	+1.2871	0.5224	0.1567	+90	+52
64 Arietis	5.7	1.19	12.1	24 21.8	9 6 20.2	+0 25.2	0.7465	0.5294	0.1348	+1	64
7 Tauri	6.0	1.26	11.9	24 7.3	11 8.7	+5 2.4	+0.3445	0.5322	0.1253	+52	19
11 Tauri	6.7	+1.32	+12.1	+25 0.0	14 6.0	+7 33.9	0.4618	0.5340	+0.1194	+18	51
c Pleiadum	6.3	1.35	11.7	23 57.9	16 0.2	+9 44.5	+0.[illegible]	0.5351	0.1155	+90	+23
17 Tauri	4.3	1.35	11.7	23 47.5	16 2.4	+9 46.4	+1.0964	0.5351	0.1154	+90	+17
18 Tauri	6.3	1.35	11.9	24 11.1	16 9.7	+9 51.6	+0.9204	0.5351	0.1152	+62	9
19 Tauri	5.0	1.35	11.8	24 8.8	16 11.3	+9 55.1	+0.7427	0.5351	0.1151	+90	+12
20 Tauri	5.0	+1.36	+11.7	+24 2.9	16 28.7	+10 11.9	+0.8642	0.5354	+0.1145	+90	+21
21 Tauri	7.0	1.36	11.8	24 14.2	16 30.8	+10 13.9	+0.6621	0.5354	0.1144	+90	+9
22 Tauri	7.0	1.36	11.8	24 12.6	16 34.8	+10 17.8	+0.6992	0.5354	0.1143	+90	+11
η Tauri	3.1	1.37	11.6	23 47.4	17 15.1	+10 56.0	+1.2580	0.5359	0.1129	+90	+51
B. A. C. 1190	6.0	1.39	11.9	25 16.3	18 32.4	11 48.5	0.2510	0.5366	0.1102	+29	58
ρ Tauri	6.0	+1.54	+12.0	+26 12.9	10 5 57.0	2 42.0	0.3471	0.5419	+0.[illegible]	+24	41
φ Tauri	5.5	1.61	12.1	27 6.5	8 24.9	+1 26.4	0.0613	0.5442	0.[illegible]	14	65
χ Tauri	5.7	1.62	11.5	25 23.4	9 17.1	+2 26.4	+1.0058	0.5447	0.0977	+90	+34
β Tauri	2.8	2.09	10.2	28 31.4	11 15 16.2	+5 26.[illegible]	1.1990	0.557[illegible]	+0.[illegible]	58	61
136 Tauri	5.5	2.26	8.5	27 55.4	12 0 54.8	7 19.9	0.2475	0.5601	0.0216	+29	29
ε Geminorum	3.2	+2.90	+4.8	+25 14.1	22 31.7	10 50.2	+1.1095	0.5624	0.0786	+90	+49
37 Geminorum	6.3	2.98	4.2	25 30.5	13 5 22.5	5 56.1	+0.4881	0.5623	0.0913	+76	+2
39 Geminorum	6.3	2.99	4.2	26 13.0	4 50.8	4 24.8	0.4070	0.5622	0.0950	+30	45
40 Geminorum	6.3	2.98	4.1	26 5.5	5 7.7	4 8.6	0.2011	0.5622	0.0957	+28	57
48 Geminorum	6.0	2.61	2.8	24 18.1	10 42.2	+1 13.8	+1.0064	0.5617	0.1029	+90	+33
49 Geminorum	7.2	+2.63	+3.1	+25 55.2	10 50.0	+1 21.5	0.7045	0.5616	0.1103	+5	64
B. A. C. 2473	7.5	2.64	2.8	24 55.2	11 12.8	+2 2.5	+0.5118	0.5616	0.1121	+63	9
52 Geminorum	6.5	2.63	2.8	25 5.9	11 30.0	+2 8.5	+0.1121	0.5616	0.1123	+90	19
A Geminorum	5.7	2.67	2.3	25 14.0	15 24.7	+5 46.0	0.5227	0.5610	0.1317	+14	54
ε Geminorum	5.7	2.71	+0.5	24 58.7	14 0 26.5	9 31.7	1.0798	0.5591	0.1455	22	65
81 Geminorum	6.3	+2.72	0.0	+21 21.7	2 14.4	7 47.7	0.0274	0.5582	0.1477	+42	29
84 Geminorum	6.8	2.74	0.5	22 55.0	4 11.0	5 55.5	+0.5178	0.5585	0.1522	+75	2
γ Cancri	6.3	2.74	1.2	22 21.5	8 55.5	1 22.0	+0.[illegible]	0.5573	0.1630	+45	28
ω Cancri	6.3	2.76	1.3	22 55.7	9 57.2	0 21.5	0.7442	[illegible]	0.1653	+2	66
ω² Cancri	5.7	2.74	1.6	21 52.8	10 50.[illegible]	+0 16.2	+0.2449	0.5568	0.1668	+55	15
B. A. C. 2748	6.0	+2.75	2.7	+21 4.3	16 7.5	+5 15.5	+0.1554	0.5552	0.1[illegible]	+51	24
[illegible] Cancri	5.4	2.78	3.5	20 47.4	21 34.5	+10 [illegible]	0.5748	[illegible]	0.1820	+12	64
35 Cancri	6.5	2.77	3.8	19 56.6	22 44.6	+11 38.8	+0.0617	[illegible]	0.1922	+48	28
B. A. C. 2899	7.2	2.78	4.2	19 57.5	23 4.2	10 58.2	+0.2012	[illegible]	0.1944	+55	23
38 Cancri	7.[illegible]	2.7[illegible]	4.3	20 8.4	15 0 4.9	10 9.[illegible]	+0.6904	[illegible]	0.1961	+16	60
B. A. C. 2914	7.2	+2.78	4.3	+19 54.1	0 44.6	10 5.4	0.2640	.5525	0.19[illegible]2	+29	47
39 Cancri	7.[illegible]	2.7[illegible]	4.3	20 22.2	0 51.1	9 59.2	0.7710	.5525	0.1974	+1	64
40 Cancri	7.1	2.7[illegible]	4.3	20 20.[illegible]	0 51.4	9 57.[illegible]	0.[illegible]	.5525	0.1965	+3	69
B. A. C. 2919	[illegible]	2.7[illegible]	4.3	20 1.9	0 58.4	9 52.2	0.6660	0.5525	0.1956	+19	57
ε Cancri	7.2	2.7[illegible]	4.4	19 54.5	1 0.[illegible]	9 49.8	0.1225	0.5525	0.1967	+26	51
[illegible] Cancri	7.1	+2.7[illegible]	4.4	+20 5.0	1 [illegible]	9 41.[illegible]	0.5[illegible]	0.5524	0.1969	+25	62
B. A. C. 2931	7.5	2.7[illegible]	4.4	20 14.4	1 1[illegible]	9 14.5	[illegible]	.5522	0.19[illegible]	0	[illegible]
δ Cancri	4.0	2.7[illegible]	4.8	18 31.[illegible]	2 56.[illegible]	7 5[illegible]	[illegible]	.551[illegible]	0.[illegible]	+90	+4
60 Cancri	[illegible]	2.7[illegible]	6.1	17 2[illegible]	10 32.2	0 5[illegible]	[illegible]	.5494	0.2143	+90	24
B. A. C. 3105	7.5	2.76	1.4	17 31.5	12 34.3	+1 19.[illegible]	0.2462	.54[illegible]	0.2178	+30	49
α Cancri	4.3	+2.75	−7.0	+15 24.5	15 20.6	+4 0.2	+1.3396	0.5478	0.2225	+90	+47

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m				°	°
π^2 Cancri	6.0	+2.73	− 7.2	+15 22.0	15 16 38.0	+ 5 15.0	+1.0699	0.5474	−0.2246	+90	+22
7 Leonis	6.3	2.73	8.7	14 50.2	16 2 2.0	− 9 40.2	−0.5660	0.5445	0.2387	+14	−70
11 Leonis	6.8	2.73	8.8	14 48.6	3 0.8	− 8 43.3	−0.7732	0.5442	0.2401	+ 2	−71
ψ Leonis	6.0	2.73	9.1	14 29.4	5 37.7	− 6 11.7	−1.0770	0.5435	0.2436	−17	76
18 Leonis	6.0	2.71	9.4	12 16.9	6 52.3	− 4 59.5	+0.8773	0.5432	0.2453	+90	+ 7
19 Leonis	6.0	+2.69	− 9.5	+12 2.5	7 21.3	− 4 31.6	+1.0036	0.5430	−0.2459	+90	+15
21 Leonis	6.8	2.70	9.7	12 19.2	8 54.5	− 3 1.5	+0.3347	0.5426	0.2478	+62	−22
23 Leonis	6.3	2.72	9.7	13 32.7	8 59.5	− 2 56.7	−0.9361	0.5426	0.2479	− 8	76
ν Leonis	5.3	2.70	10.1	12 56.0	12 18.8	+ 0 15.9	−1.1414	0.5417	0.2519	−22	−77
A Leonis	4.7	2.67	10.7	10 30.0	16 48.9	+ 4 37.1	+0.1940	0.5406	0.2569	+54	−30
44 Leonis	6.0	+2.63	−11.7	+ 9 18.3	17 0 52.9	−11 35.1	−0.6958	0.5391	−0.2646	+ 7	−81
48 Leonis	5.5	2.60	12.1	7 28.8	5 21.3	− 7 15.5	−0.0371	0.5383	0.2681	+41	−44
35[1] Sextantis	6.2	2.54	12.5	5 17.0	9 21.1	− 3 23.7	+1.1092	0.5378	0.2709	+90	+16
37 Sextantis	6.3	2.56	12.7	6 54.7	10 38.1	− 2 9.2	−0.8868	0.5377	0.2717	− 4	83
d Leonis	5.3	2.50	13.2	4 10.0	17 25.5	+ 4 24.9	+0.0302	0.5371	0.2752	+45	41
p^3 Leonis	6.2	+2.48	−13.4	+ 2 30.7	20 25.6	+ 7 19.1	+0.8720	0.5370	−0.2767	+90	+ 3
75 Leonis	5.7	2.46	13.8	2 34.4	18 1 16.4	−11 59.7	−0.5338	0.5370	0.2778	+16	75
76 Leonis	6.3	2.45	13.8	2 12.7	2 2.4	−11 15.1	−0.3827	0.5370	0.2780	+24	65
79 Leonis	6.0	2.45	14.0	+ 1 58.1	4 26.4	− 8 56.0	−0.8063	0.5371	0.2784	+ 1	−71
υ Leonis	4.4	2.39	14.2	− 0 15.5	10 29.2	− 3 5.1	−0.2505	0.5375	0.2788	+30	−57
q Virginis	5.7	+2.21	−14.2	− 8 53.3	19 12 47.0	− 1 39.8	+1.1554	0.5431	−0.2695	+81	+22
χ Virginis	5.2	2.20	14.5	7 26.0	15 16.8	+ 0 45.0	−0.9729	0.5439	0.2676	11	−90
75 Virginis	6.0	2.01	13.4	14 50.2	20 15 9.9	− 0 11.4	+0.3379	0.5545	0.2414	+56	−26
83 Virginis	6.0	1.98	13.0	15 39.9	20 12.7	+ 4 40.7	−0.0307	0.5570	0.2338	+36	−44
85 Virginis	6.5	1.97	13.1	15 15.2	20 41.1	+ 5 8.1	−0.5540	0.5572	0.2330	+ 9	−79
B. A. C. 4722	5.8	+1.87	−12.4	−17 43.4	21 9 22.8	− 6 37.9	−0.9008	0.5667	−0.2109	−14	90
42 Libræ	5.7	1.57	9.6	23 29.2	22 19 49.5	+ 2 26.1	−1.0558	0.5825	0.1306	−33	90
b Scorpii	5.3	1.53	8.7	25 26.4	23 59.9	+ 6 26.5	+0.4036	0.5836	0.1192	+46	21
A[2] Scorpii	5.2	1.52	8.8	25 1.3	23 1 2.3	+ 7 26.5	−0.1434	0.5846	0.1163	+17	52
B. A. C. 5253	5.8	1.51	9.1	24 13.7	1 9.8	+ 7 33.7	−0.9629	0.5846	0.1159	−29	−90
3 Scorpii	6.7	+1.51	− 8.8	−24 56.4	1 27.0	+ 7 50.1	−0.2738	0.5847	−0.1151	+10	−60
4 Scorpii	6.3	1.51	8.5	25 57.9	1 45.9	+ 8 8.3	+0.7292	0.5849	0.1143	+64	− 2
π Scorpii	3.4	1.50	8.5	25 49.2	3 4.5	+ 9 23.8	+0.4353	0.5853	0.1106	+48	19
B. A. C. 5314	5.7	1.48	8.5	25 34.8	4 50.1	+11 5.2	+0.0015	0.5860	0.1056	+23	43
B. A. C. 5347	6.0	1.46	8.2	26 3.1	6 40.8	−11 8.5	+0.2898	0.5865	0.1003	+38	27
σ Scorpii	3.4	+1.41	− 8.3	−25 20.9	11 46.0	− 6 11.6	−0.8978	0.5885	−0.0854	−27	90
α Scorpii	1.2	1.38	7.8	26 12.3	14 55.9	− 3 9.3	−0.2836	0.5887	0.0760	+ 7	−61
B. A. C. 5800	7.5	1.20	6.7	26 51.8	24 8 11.0	−10 36.2	−0.4736	0.5902	0.0236	− 9	75
A Ophiuchi	4.9	1.20	6.8	26 27.2	8 38.5	−10 9.8	−0.9040	0.5901	0.0222	−33	90
B. A. C. 5813	6.8	1.19	6.8	26 24.0	8 58.8	− 9 50.3	−0.9656	0.5901	0.0211	−37	−90
38 Ophiuchi	6.7	+1.19	− 6.8	−26 31.1	9 30.3	− 9 20.1	−0.8562	0.5901	−0.0195	−30	90
43 Ophiuchi	5.8	1.17	6.1	28 2.7	11 40.4	− 7 15.3	+0.6734	0.5899	−0.0129	+57	4
3 Sagittarii	4.6	1.06	5.9	27 47.6	21 1.8	+ 1 43.5	+0.4308	0.5883	+0.0158	+40	−19
B. A. C. 6194	5.1	0.94	5.3	27 4.8	25 8 57.0	−10 49.8	+0.0987	0.5841	0.0513	+24	38
B. A. C. 6394	6.2	0.82	5.3	25 6.9	19 37.8	− 0 24.2	−1.2237	0.5791	0.0818	53	90
φ Sagittarii	3.7	+0.83	− 4.7	−27 5.9	19 55.3	− 0 17.2	+0.8547	0.5788	+0.0825	+63	+ 6
σ Sagittarii	2.3	0.79	4.7	26 25.6	23 48.7	+ 3 27.0	+0.5008	0.5766	0.0932	+50	15
γ[1] Sagittarii	5.4	0.67	4.5	24 42.6	26 12 10.5	− 8 39.3	+0.0695	0.5686	0.1250	+29	39
γ[2] Sagittarii	6.3	0.67	4.5	24 36.9	12 12.9	− 8 37.0	−0.0234	0.5686	0.1251	+24	−45
χ[1] Sagittarii	5.6	0.67	4.7	24 9.9	12 16.5	8 33.6	−0.4852	0.5686	0.1253	+ 1	76
h[1] Sagittarii	5.7	+0.64	− 4.2	−24 56.7	16 40.7	− 4 19.2	+0.9039	0.5654	+0.1358	+65	+ 9
h[2] Sagittarii	4.7	0.64	4.2	25 6.7	16 57.5	− 4 2.9	+1.1137	0.5652	0.1365	+65	+26
53 Sagittarii	6.7	0.62	4.5	23 39.5	18 18.5	− 2 44.9	−0.2158	0.5642	0.1395	+16	56
B. A. C. 6727	6.2	0.62	4.5	23 40.0	18 25.9	− 2 37.8	−0.1902	0.5641	0.1399	+17	−55
4 Capricorni	6.1	0.49	4.0	22 7.7	27 10 54.4	−10 44.6	+0.8036	0.5516	0.1748	+68	+ 2
ν Capricorni	5.3	+0.40	− 4.4	−18 30.1	20 54.0	− 1 5.6	−1.1740	0.5438	+0.1929	−35	−90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

FEBRUARY

The Stars					At Conjunction in R. A.					Limiting Parallels	
Name	Mag.	Red. to from 1897.0 Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
		s	"	° '	d h m	h m				°	°
19 Capricorni	6.1	+0.37	5.9	18 18.9	28 3 43.1	+ 5 29.8	0.0209	0.5586	+0.2040	+33	44
21 Capricorni	6.4	0.36	5.7	17 56.0	6 34.0	+ 8 15.1	+0.1637	0.5585	0.2081	+44	34
θ Capricorni	4.1	0.33	5.7	17 15.6	8 57.8	+10 34.2	+0.3500	0.5592	0.2116	+55	24
29 Capricorni	5.7	+0.31	5.7	15 56.0	13 40.1	− 8 32.6	0.7246	0.5513	+0.2179	5	40
				NEW	MOON						

MARCH

Name	Mag.	Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
51 Piscium	5.8	+0.13	+ 2.4	+ 6 23.3	4 21 26.4	4 6.3	+1.2451	0.4962	+0.2465	+90	+11
73 Piscium	6.0	0.16	4.6	12 24.3	6 15 58.8	10 4.9	0.9252	0.5001	0.2328	7	75
ψ Piscium	5.7	+0.23	+ 5.8	+14 49.0	6 5 17.5	+ 2 51.2	0.5790	0.5037	+0.2197	+13	70
101 Piscium	6.3	0.25	5.9	14 8.2	7 34.3	+ 5 4.0	+0.6755	0.5045	0.2172	+90	1
103 Piscium	6.8	0.25	6.4	16 6.3	9 23.5	+ 6 30.1	1.1083	0.5050	0.2152	20	74
105 Piscium	6.3	0.26	6.3	15 51.1	9 36.5	+ 7 3.1	0.8178	0.5051	0.2149	1	74
3 Arietis	6.0	0.27	6.8	16 55.9	13 14.1	+10 34.1	1.1690	0.5064	0.2107	26	73
4 Arietis	5.7	+0.28	+ 6.7	+16 26.7	14 4.6	+11 23.1	0.4901	0.5067	+0.2097	+17	64
[illegible] Arietis	5.7	0.32	7.1	17 19.0	18 51.0	6 58.6	0.4669	0.5086	0.2037	+18	61
15 Arietis	5.7	0.37	7.8	19 1.0	7 1 41.1	1 20.8	0.9912	0.5114	0.1946	13	71
B. A. C. 686	7.2	0.40	8.0	19 8.0	3 20.8	+ 0 15.9	0.7091	0.5121	0.1923	0	71
θ Arietis	5.7	0.40	8.1	19 25.6	5 31.4	+ 2 22.6	0.7098	0.5130	0.1893	+ 5	71
23 Arietis	7.5	+0.41	+ 8.1	+19 13.1	6 2.8	+ 2 53.1	0.3802	0.5132	+0.1884	+21	54
26 Arietis	6.0	0.47	8.3	19 24.0	11 51.8	+ 8 31.5	+0.4590	0.5153	0.1797	+74	8
[illegible] Arietis	5.7	0.50	9.2	21 31.1	15 50.7	11 31.0	1.1907	0.5178	0.1733	26	68
[illegible] Arietis	4.6	0.62	9.2	20 55.9	8 2 3.3	1 43.1	+1.1800	0.5227	0.1564	+90	+13
64 Arietis	5.7	0.76	10.4	24 21.7	14 9.4	+10 0.1	0.8630	0.5274	0.1342	6	66
7 Tauri	6.0	+0.82	+10.4	+24 7.3	18 49.6	0 19.0	+0.0299	0.5312	+0.1248	+45	25
11 Tauri	6.7	0.87	10.7	24 52.9	21 58.2	6 26.2	0.5795	0.5326	0.1188	+11	55
ε Pleiadum	6.3	0.90	10.4	23 58.1	23 55.3	− 4 14.0	+0.7580	0.5336	0.1148	+90	+16
17 Tauri	4.3	0.90	10.3	23 47.5	23 55.5	4 12.8	+0.9850	0.5336	0.1148	+90	+29
18 Tauri	6.3	0.90	10.6	24 31.2	9 0 2.8	4 25.6	+0.1026	0.5337	0.1145	+55	15
19 Tauri	5.0	+0.90	+10.4	+24 8.8	0 4.5	4 24.0	+0.6497	0.5337	+0.1145	+90	+ 6
20 Tauri	5.0	0.90	10.4	24 2.9	0 22.0	4 7.0	+0.7517	0.5338	0.1141	+90	+14
21 Tauri	7.0	0.90	10.5	24 14.1	0 24.1	4 5.0	+0.5487	0.5339	0.1138	+81	+ 3
22 Tauri	7.0	0.91	10.5	24 12.5	0 28.1	4 1.1	+0.5857	0.5339	0.1136	+85	+ 5
η Tauri	3.1	0.92	10.3	23 47.4	1 9.0	3 21.6	+1.1271	0.5342	0.1112	+90	+40
28 Tauri	6.2	+0.91	+10.3	+23 40.5	1 46.8	2 35.4	+1.1767	0.5346	+0.1106	+90	+45
B. A. C. 1192	6.[illegible]	0.91	10.8	25 16.2	2 26.7	2 6.4	0.5706	0.5348	0.1095	+23	45
ρ Tauri	6.0	1.07	10.9	26 13.9	11 49.3	+ 7 4.0	0.4670	0.5423	0.0891	+17	49
ο Tauri	5.3	1.14	11.1	27 [illegible]	16 17.7	+11 17.0	1.0849	0.5412	0.0734	25	63
ξ Tauri	5.7	1.15	10.5	25 23.3	17 20.7	11 42.2	+0.8931	0.5417	+0.0770	+90	+26
106 Tauri	5.3	+1.81	+ 8.8	+27 55.4	11 9 17.5	+ 3 11.7	0.9657	0.5542	0.0134	+22	56
[illegible] Geminorum	5.2	2.12	5.6	25 14.1	12 7 41.4	+ 0 27.5	+1.0697	0.5556	0.0773	+90	+41
[illegible] Geminorum	6.3	2.12	5.0	25 [illegible]	12 18.2	+ 5 [illegible]	+0.3934	0.5555	0.0867	+68	3
[illegible] Geminorum	6.3	2.23	5.0	26 11	14 8.6	+ 6 40.9	0.5183	0.5554	0.0934	+24	52
[illegible] Geminorum	6.3	2.22	4.9	26 [illegible]	14 25.8	+ 6 57.5	0.3700	0.5551	0.0941	+22	43
48 Geminorum	6.0	+2.28	+ 3.7	+24 18.1	20 7.4	11 33.1	+0.9289	0.5540	0.1081	+90	+26
49 Geminorum	7.2	2.30	4.2	25 55.5	20 15.5	11 25.5	0.8155	0.5540	0.1084	4	64
B. A. C. [illegible]	7.3	2.22	3.8	24 53.2	20 49.2	10 41.2	+0.2069	0.5548	0.1102	+96	14
52 Geminorum	6.3	2.30	3.8	25 1.2	21 5.4	10 17.1	+0.2080	0.5549	0.1104	+44	24
A Geminorum	5.7	2.35	3.4	25 14.9	13 0 55.7	6 55.0	0.6296	0.5543	0.1197	+ 8	61
[illegible] Geminorum	5.7	+2.43	+ 1.7	+24 58.7	10 8.3	+ 1 58.2	1.1855	0.5520	0.1411	33	65
83 Geminorum	6.3	2.45	1.1	23 21.8	12 58.3	+ 3 44.3	0.1247	0.5526	0.1454	+96	14
84 Geminorum	6.8	2.45	+ 0.5	22 [illegible]	13 57.6	+ 5 13.4	+0.4242	0.5521	0.1472	+70	7
[illegible] Cancri	6.3	2.50	− 0.2	22 21.6	18 44.7	+10 16.4	+0.6680	0.5512	0.1561	+59	33
[illegible] Cancri	6.3	2.52	0.2	22 55.8	19 49.5	+11 19.0	0.8405	0.5511	0.1638	4	67
[illegible] Cancri	5.7	+2.51	− 0.6	+21 52.8	20 20.3	+11 57.4	+0.1552	0.5509	+0.1642	+52	22

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MARCH.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Red'ns from 1897.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
B. A. C. 2788	6.0	+2.54	− 1.8	+21 4.3	14 2 5.9	− 6 37.8	+0.0494	0.5492	−0.1759	+46	−29
η Cancri	5.4	2.60	2.6	20 47.4	7 38.0	− 1 17.3	−0.6600	0.5482	0.1871	+ 7	−68
35 Cancri	6.3	2.59	3.0	19 56.6	8 49.1	− 0 8.6	+0.0010	0.5481	0.1895	+43	−33
B. A. C. 2899	7.2	2.59	3.4	19 37.5	9 55.5	+ 0 55.5	+0.1214	0.5475	0.1916	+50	−26
38 Cancri	7.0	2.60	3.4	20 8.5	10 47.1	+ 1 45.4	−0.5806	0.5473	0.1933	+12	−65
B. A. C. 2914	7.2	+2.60	− 3.5	+19 54.2	10 50.9	+ 1 49.1	−0.3445	0.5473	−0.1934	+25	−51
39 Cancri	7.0	2.61	3.3	20 22.1	10 57.5	+ 1 55.4	−0.8533	0.5473	0.1936	4	−70
40 Cancri	7.3	2.61	3.3	20 20.1	10 59.8	+ 1 57.6	−0.8229	0.5472	0.1938	− 2	−70
B. A. C. 2919	7.3	2.60	3.4	20 1.9	11 5.0	+ 2 2.6	−0.5253	0.5472	0.1939	+15	−62
ε Cancri	7.2	2.60	3.5	19 54.5	11 7.2	+ 2 4.8	−0.4030	0.5472	0.1939	+21	−55
e Cancri	7.1	+2.61	− 3.4	+20 5.0	11 14.4	+ 2 11.7	−0.6086	0.5472	−0.1942	+10	−66
B. A. C. 2931	7.5	2.61	3.5	20 14.4	11 44.3	+ 2 40.6	−0.8689	0.5471	0.1951	− 5	−70
δ Cancri	4.0	2.60	4.2	18 31.9	13 2.8	+ 3 56.4	+0.6530	0.5469	0.1978	+90	0
68 Cancri	7.5	2.64	5.5	17 29.0	20 45.7	+11 23.5	+0.1558	0.5456	0.2118	+52	−27
B. A. C. 3103	7.5	2.66	5.8	17 31.5	22 49.0	−10 37.5	−0.3232	0.5452	0.2153	+26	−53
π_1 Cancri	6.3	+2.64	− 6.6	+15 24.5	15 1 37.0	− 7 55.2	+1.2536	0.5445	−0.2200	+90	+39
π_2 Cancri	6.0	2.65	6.7	15 22.0	2 55.8	− 6 39.0	+1.0087	0.5444	0.2223	+90	+19
7 Leonis	6.3	2.71	8.5	14 50.2	12 22.9	+ 2 28.7	−0.6199	0.5426	0.2367	+10	−73
11 Leonis	6.8	2.72	8.6	14 48.6	13 2.9	+ 3 25.9	−0.8261	0.5423	0.2381	− 1	−75
ψ Leonis	6.0	2.73	9.0	14 29.4	15 59.4	+ 5 58.1	−1.1264	0.5420	0.2417	−21	−76
18 Leonis	6.0	+2.72	− 9.6	+12 16.9	17 14.3	+ 7 10.5	+0.8286	0.5418	−0.2434	+90	+ 5
19 Leonis	7.0	2.72	9.7	12 2.5	17 43.3	+ 7 38.5	+0.9562	0.5418	0.2440	+90	+12
21 Leonis	6.8	2.72	9.8	12 19.2	19 16.6	+ 9 8.7	+0.2902	0.5415	0.2460	+60	24
23 Leonis	6.3	2.73	9.6	13 32.7	19 21.7	+ 9 13.6	−0.9807	0.5415	0.2462	−11	−76
ν Leonis	5.3	2.74	10.2	12 56.0	22 41.2	−11 33.6	−1.1801	0.5411	0.2503	−25	−77
A Leonis	4.7	+2.72	−11.2	+10 30.0	16 3 11.3	− 7 12.4	+0.1590	0.5406	−0.2555	+52	−32
44 Leonis	6.0	2.73	12.3	9 18.3	11 13.8	+ 0 34.0	−0.7174	0.5401	0.2637	+ 6	80
48 Leonis	5.5	2.72	13.0	7 28.8	15 40.5	+ 4 51.9	−0.0540	0.5400	0.2675	+40	−45
35[1] Sextantis	6.2	2.68	13.8	5 17.0	19 38.6	+ 8 42.0	+1.0921	0.5400	0.2705	+90	+18
37 Sextantis	6.3	2.70	13.7	6 54.7	20 54.8	+ 9 55.7	−0.8920	0.5400	0.2714	− 4	−83
d Leonis	5.3	+2.68	−14.8	+ 4 10.0	17 3 37.8	− 7 34.7	+0.0306	0.5404	−0.2754	+45	−41
ρ^3 Leonis	6.2	2.66	15.2	2 30.6	6 35.6	− 4 42.8	+0.8712	0.5407	0.2767	+90	+ 3
75 Leonis	5.7	2.67	15.6	2 34.3	11 22.1	− 0 5.9	−0.5172	0.5414	0.2786	+17	74
76 Leonis	6.3	2.67	15.7	2 12.6	12 7.5	+ 0 38.0	−0.3665	0.5415	0.2788	+24	−64
79 Leonis	6.0	2.67	15.9	+ 1 58.1	14 29.1	+ 2 54.8	−0.7827	0.5418	0.2794	+ 2	−76
υ Leonis	4.4	+2.66	−16.5	− 0 15.6	20 25.3	+ 8 39.1	−0.2218	0.5430	−0.2802	+32	−55
φ Virginis	5.7	2.62	17.7	8 53.3	18 22 5.3	+ 9 26.5	+1.2065	0.5517	0.2722	+81	+26
χ Virginis	5.2	2.62	17.9	7 26.0	19 0 30.7	+11 46.9	−0.8910	0.5528	0.2704	− 6	90
ψ Virginis	5.2	2.61	17.9	8 59.1	7 8.3	− 5 49.5	−1.1313	0.5551	0.2647	−23	90
75 Virginis	6.0	2.57	17.4	14 50.3	23 38.8	+10 5.3	+0.4329	0.5650	0.2446	+61	−20
83 Virginis	6.0	+2.57	−17.1	−15 40.0	20 4 31.4	− 9 12.9	+0.0759	0.5677	−0.2370	+41	39
85 Virginis	6.5	2.56	17.1	15 15.3	4 59.0	− 8 46.3	−0.4392	0.5680	0.2363	+14	−70
B. A. C. 4722	5.8	2.53	16.4	17 43.5	17 14.6	+ 3 1.6	−0.7632	0.5753	0.2139	− 6	−90
42 Libræ	5.7	2.41	12.6	23 29.2	22 2 34.1	+11 2.1	−0.8940	0.5922	0.1321	22	−90
b Scorpii	5.3	2.39	11.7	25 26.5	6 37.4	− 9 4.5	+0.5464	0.5936	0.1205	+55	−13
A² Scorpii	5.2	+2.38	−11.7	−25 1.4	7 37.9	− 8 6.4	+0.0050	0.5939	−0.1175	+24	−43
B. A. C. 5253	5.8	2.37	12.0	24 13.8	7 45.2	− 7 59.4	−0.8002	0.5939	0.1172	−18	90
3 Scorpii	6.7	2.38	11.8	24 56.5	8 1.9	− 7 43.5	−0.1206	0.5940	0.1163	+18	50
4 Scorpii	6.3	2.38	11.4	25 57.9	8 20.2	− 7 25.9	+0.8686	0.5941	0.1154	+64	+ 7
π Scorpii	3.4	2.37	11.4	25 49.2	9 36.7	− 6 12.5	+0.5791	0.5945	0.1117	+57	10
B. A. C. 5314	5.7	+2.36	−11.2	−25 34.8	11 19.3	− 4 34.1	+0.1527	0.5949	−0.1066	+32	−35
B. A. C. 5347	6.0	2.35	10.9	26 3.2	13 7.1	− 2 50.7	+0.4388	0.5953	0.1012	+47	18
σ Scorpii	3.4	2.30	10.6	25 20.9	18 4.4	+ 1 54.3	−0.7322	0.5963	0.0862	−17	90
α Scorpii	1.2	2.28	10.0	26 12.4	21 9.5	+ 4 51.7	−0.1219	0.5966	0.0766	+14	50
B. A. C. 5800	7.5	2.13	7.9	26 51.8	23 14 2.5	− 2 57.2	−0.3084	0.5959	0.0236	0	62
A Ophiuchi	4.9	+2.12	− 8.2	−26 27.2	14 29.6	− 2 31.2	−0.7345	0.5959	−0.0220	−23	−90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS

MARCH.

The Star's					At Conjunction in R. A.					Limiting Parallels	
Name.	Mag.	Red'ns from 1897.0 Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
		s	"	° '	d h m	h m				°	°
B A C 5813	6.8	+2.22	-8.2	-26 24.0	25 14 49.4	-2 12.3	-0.7954	0.5958	0.0012	26	90
58 Ophiuchi	6.7	2.22	7.9	26 31.1	15 20.3	-1 42.7	-0.6871	0.5957	0.0195	20	90
45 Ophiuchi	5.8	2.11	7.1	28 2.7	17 28.3	+0 20.1	+0.8280	0.5952	0.0138	+62	+6
3 Sagittarii	4.6	2.00	6.2	27 47.6	26 2 41.2	+9 10.2	+0.5880	0.5923	+0.0190	+51	9
B A C 6194	5.1	1.86	4.9	27 4.8	14 28.5	-3 31.0	+0.2808	0.5866	0.0514	+32	28
λ Sagittarii	2.9	+1.81	-5.1	25 28.8	18 23.8	+0 14.9	1.1996	0.5843	+0.0628	48	90
B A C 6369	6.2	1.72	4.4	25 6.9	28 1 4.9	+6 40.3	1.0544	0.5800	0.0812	58	90
φ Sagittarii	3.7	1.73	3.7	27 5.9	2 22.4	+6 57.1	+1.0125	0.5798	0.0824	+63	18
σ Sagittarii	2.3	1.68	3.6	26 25.5	5 14.9	+10 40.6	+0.6599	0.5770	0.0929	+61	6
ψ Sagittarii	5.4	1.57	2.9	25 28.1	13 32.4	-5 20.9	+0.4950	0.5708	0.1143	+52	15
χ¹ Sagittarii	5.4	+1.52	-2.8	-24 42.6	17 35.3	-1 27.1	+0.2255	0.5676	+0.1242	+57	31
χ² Sagittarii	6.3	1.52	2.8	24 36.9	17 38.4	-1 24.2	+0.1343	0.5675	0.1243	+33	60
χ³ Sagittarii	5.6	1.51	2.9	24 9.9	17 42.0	1 20.7	-0.3288	0.5675	0.1245	+9	63
A¹ Sagittarii	5.7	1.47	2.2	24 56.7	22 6.8	+2 56.3	+1.0500	0.5643	0.1348	+76	+21
A² Sagittarii	4.7	1.46	2.2	25 6.7	22 23.6	+3 10.6	+1.2703	0.5637	0.1355	+65	+46
53 Sagittarii	6.7	+1.43	2.6	23 39.8	23 44.8	+4 28.2	0.0986	0.5626	+0.1380	+24	46
B A C 6727	6.2	1.43	2.5	23 39.9	23 52.2	+4 35.9	0.0149	0.5625	0.1388	+25	45
4 Capricorni	6.1	1.22	1.4	22 7.7	26 16 26.1	-3 25.6	+0.9405	0.5480	0.1790	+68	+12
ν Capricorni	5.7	1.09	2.0	18 30.1	27 1 30.9	+6 18.6	1.0982	0.5403	0.1906	+24	90
19 Capricorni	6.1	1.08	2.2	18 18.8	9 24.3	-11 1.7	+0.1124	0.5348	0.2013	+41	57
21 Capricorni	6.4	+0.90	-1.1	-17 56.0	12 17.0	-8 14.6	+0.2090	0.5326	+0.2054	+51	27
θ Capricorni	4.1	0.96	1.0	17 38.5	14 48.5	5 53.8	+0.4887	0.5307	0.2088	+62	17
29 Capricorni	5.7	0.92	1.1	15 56.0	19 28.1	-1 17.2	0.6650	0.5274	0.2150	+2	90
42 Capricorni	5.6	0.78	0.4	14 30.4	28 8 14.4	+11 15.4	+0.9295	0.5186	0.2292	+75	+12
46 Capricorni	6.9	0.76	0.9	12 10.2	10 51.3	10 22.5	-0.8999	0.5169	0.2317	9	90
σ Aquarii	6.8	+0.64	0.2	-11 19.6	23 5.1	+1 29.4	+1.0956	0.5104	+0.2416	+70	+18
B A C 7774	6.4	0.63	0.1	9 35.2	29 2 25.0	+4 43.4	0.0081	0.5084	0.2438	+40	41
ρ Aquarii	5.6	0.61	0.3	8 20.3	4 10.0	+6 25.9	0.8927	0.5076	0.2449	6	90
67 Aquarii	6.4	0.5	+0.2	7 50.1	16 24.0	-5 41.8	+1.2400	0.5036	0.2509	+82	+23
B A C 7951	6.7	0.48	0.2	4 45.8	18 54.2	3 15.8	1.0969	0.5017	0.2518	19	90
B A C 7986	5.9	+0.46	+0.2	-5 32.2	22 10.8	+0 34.2	+0.7568	0.5004	+0.2530	+82	+5
B A C 7993	6.6	0.45	0.1	5 21.6	23 50.2	+1 40.5	+0.8157	0.5002	0.2533	+89	+1
12 Piscium	6.8	0.34	0.9	-1 56.1	30 17 [illegible]	-5 11.7	+1.2345	0.4964	0.2552	+88	+29
13 Piscium	6.6	0.32	0.8	+0 44.7	20 51.6	-1 50.8	0.4874	0.4961	0.2550	+18	72
16 Piscium	5.8	0.32	0.8	1 31.9	21 24.1	1 30.1	1.2181	0.4960	0.2550	27	88
λ Piscium	4.5	+0.30	+1.0	+1 12.8	31 0 31.2	+1 31.8	0.0774	0.4959	+0.2546	+50	47
19 Piscium	4.9	0.30	1.0	2 54.9	2 54.8	+3 51.5	1.1316	0.4956	0.2542	90	87
22 Piscium	5.0	0.28	1.3	2 21.5	5 50.1	+6 50.7	+0.0981	0.4955	0.2535	+46	40
25 Piscium	6.4	+0.27	+1.4	+1 31.1	6 56.0	+7 26.6	+1.1343	0.4955	+0.2534	+90	+20
					NEW MOON						

APRIL.

Name.	Mag.	Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
23 Arietis	5.7	+0.22	+8.1	+29 1.0	8 8 32.5	+7 17.1	-1.1332	0.5133	+0.1917	24	71
B A C 686	7.2	0.23	8.2	29 8.0	10 11.0	+8 53.7	-0.9447	0.5140	0.1914	10	71
θ Arietis	5.7	+0.24	+8.3	+19 25.6	12 21.5	+11 0.2	-0.8970	0.5150	+0.1893	4	71
35 Arietis	7.5	0.24	6.3	19 13.1	12 32.9	+11 30.7	-0.5464	0.5152	0.1875	+15	63
36 Arietis	6.6	0.38	6.6	19 24.0	18 41.5	6 51.3	[illegible]	0.5170	[illegible]	[illegible]	16
ν Arietis	5.7	0.29	7.3	21 32.1	22 46.1	-2 54.1	[illegible]	0.5198	0.1725	46	66
μ Arietis	6.7	0.32	7.0	19 34.5	9 0 36.0	-1 9.4	+1.1055	0.5236	0.1696	[illegible]	[illegible]
ε Arietis	4.6	[illegible]	[illegible]	+20 55.8	8 52.5	+6 55.8	+1.0098	0.5245	+0.1556	+90	[illegible]
[illegible] Arietis	5.7	0.45	8.4	24 31.7	20 50.0	-5 22.7	1.0825	0.5302	0.1333	21	67
7 Tauri	6.0	0.53	8.5	24 [illegible]	10 1 4.7	-0 41.3	[illegible]	0.5324	0.1258	+54	55
11 Tauri	6.7	0.55	8.7	24 49.0	4 48.7	+2 11.9	[illegible]	0.5318	0.1178	1	65
[illegible]	6.3	0.56	8.7	23 58.1	6 44.1	+4 3.5	+0.5917	0.5346	0.1159	+85	+5
17 Tauri	4.3	+0.66	+8.6	+23 47.5	6 46.3	+4 5.6	+0.7023	0.5346	+0.1158	+90	+17

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
18 Tauri	6.3	+0.56	+ 8.8	+24 31.1	5 6 53.6	+ 4 12.7	−0.0018	0.5346	+0.1136	+43	−25
19 Tauri	5.0	0.56	8.7	24 8.8	6 55.3	+ 4 14.3	+0.4145	0.5347	0.1135	+70	− 4
20 Tauri	5.0	0.56	8.7	24 2.9	7 12.9	+ 4 31.4	+0.5568	0.5348	0.1129	+82	+ 4
21 Tauri	7.0	0.56	8.7	24 14.1	7 15.0	+ 4 33.4	+0.3531	0.5348	0.1129	+65	− 7
22 Tauri	7.0	0.56	8.7	24 12.5	7 19.0	+ 4 37.3	+0.3898	0.5348	0.1127	+68	− 5
23 Tauri	4.7	+0.56	+ 8.6	+23 37.8	7 27.5	+ 4 45.5	+1.0489	0.5349	+0.1124	+90	+34
η Tauri	3.1	0.57	8.6	23 47.3	8 0.0	+ 5 16.9	+0.9326	0.5352	0.1113	+90	+26
27 Tauri	4.0	0.58	8.6	23 44.4	8 47.4	+ 6 2.9	+1.0733	0.5355	0.1097	+90	+36
28 Tauri	6.2	0.58	8.6	23 49.4	8 48.0	+ 6 3.3	+0.9818	0.5355	0.1097	+90	+29
B. A. C. 1192	6.0	0.58	9.0	25 16.2	9 18.0	+ 6 32.4	−0.5695	0.5357	0.1086	+11	−57
p Tauri	6.0	+0.68	+ 9.3	+26 12.9	18 50.6	− 8 13.9	−0.6769	0.5396	+0.0881	+ 4	−62
χ Tauri	5.7	0.75	9.0	25 23.3	6 0 16.3	− 2 59.0	+0.6847	0.5416	+0.0761	+90	+14
136 Tauri	5.3	1.33	8.3	27 35.4	7 17 0.8	−11 38.4	−0.6043	0.5504	−0.0215	+ 8	−53
139 Tauri	5.3	1.35	7.6	25 56.6	19 7.3	− 9 36.3	+1.1506	0.5505	0.0267	+90	+50
ε Geminorum	3.2	1.64	5.7	25 14.1	8 15 30.8	+10 4.6	+0.8599	0.5500	0.0764	+90	+25
Mars				+25 9.6	16 19.9	+10 52.1	+0.8765	0.5272	−0.0765	+90	+25
37 Geminorum	6.3	+1.71	+ 5.4	25 30.3	20 34.3	− 9 2.4	+0.1466	0.5494	0.0887	+52	−15
39 Geminorum	6.3	1.74	5.5	26 13.1	22 6.8	− 7 33.1	−0.7644	0.5492	0.0923	− 1	−64
40 Geminorum	6.3	1.74	5.4	26 3.3	22 24.6	− 7 15.9	−0.6164	0.5492	0.0930	+ 8	−58
ω Geminorum	5.7	1.74	4.6	24 21.8	23 45.6	− 5 57.7	+1.0886	0.5490	0.0962	+90	+38
48 Geminorum	6.0	+1.80	+ 4.2	+24 18.1	9 4 14.4	− 1 38.3	+0.6987	0.5485	−0.1067	+90	+12
49 Geminorum	7.2	1.82	4.7	25 55.3	4 27.5	− 1 25.5	−1.0744	0.5481	0.1067	−24	−64
B. A. C. 2363	7.3	1.82	4.3	24 53.2	5 7.3	− 0 47.3	−0.0289	0.5481	0.1087	+41	−26
52 Geminorum	6.3	1.82	4.3	25 3.9	5 13.9	− 0 40.8	−0.2323	0.5481	0.1089	+30	−37
A Geminorum	5.7	1.88	4.0	25 15.0	9 10.0	+ 3 7.1	−0.8767	0.5474	0.1179	· 8	65
82 Geminorum	6.3	+2.00	+ 2.0	+23 23.8	20 30.4	− 9 55.8	−0.3632	0.5451	−0.1430	+23	−47
84 Geminorum	6.8	2.01	1.4	22 36.0	22 32.5	− 7 57.9	+0.1941	0.5446	0.1473	+55	−18
7 Cancri	6.3	2.07	0.8	22 21.6	10 3 28.1	− 3 12.4	−0.3010	0.5435	0.1576	+26	−45
μ¹ Cancri	6.3	2.09	0.8	22 55.8	4 34.7	− 2 8.0	−1.0841	0.5432	0.1599	−22	−67
μ² Cancri	5.7	2.08	+ 0.4	21 52.8	5 15.7	− 1 28.4	−0.0763	0.5430	0.1612	+39	−34
B. A. C. 2788	6.0	+2.13	− 0.9	+21 4.3	11 1.7	+ 4 5.9	−0.1790	0.5418	−0.1728	+33	−40
η Cancri	5.4	2.20	1.3	20 47.4	16 43.3	+ 9 35.9	−0.8944	0.5405	0.1837	− 8	−69
35 Cancri	6.3	2.20	1.8	19 56.6	17 56.5	+10 46.8	−0.2243	0.5401	0.1860	+31	−44
B. A. C. 2899	7.2	2.20	2.2	19 37.6	19 4.7	+11 52.6	−0.1013	0.5399	0.1880	+38	−37
38 Cancri	7.0	2.22	2.2	20 8.5	19 57.8	−11 16.0	−0.8117	0.5397	0.1897	− 2	−70
B. A. C. 2914	7.2	+2.22	− 2.3	+19 54.2	20 1.8	−11 12.1	−0.5728	0.5397	−0.1898	+12	65
39 Cancri	7.0	2.23	2.1	20 22.2	20 8.6	−11 5.6	−1.0882	0.5397	0.1900	−21	·70
40 Cancri	7.3	2.23	2.1	20 20.1	20 10.9	−11 3.4	−1.0571	0.5397	0.1901	−19	−70
B. A. C. 2919	7.3	2.23	2.2	20 2.0	20 16.2	−10 58.3	−0.7554	0.5397	0.1902	+ 1	68
ε Cancri	7.2	2.22	2.3	19 54.5	20 18.5	−10 56.0	−0.6316	0.5397	0.1903	+ 9	−68
c Cancri	7.1	+2.23	2.6	+20 5.0	20 26.0	−10 48.7	−0.8405	0.5396	−0.1905	· 4	·70
B. A. C. 2931	7.5	2.24	2.2	20 14.4	20 56.7	−10 19.1	−1.1031	0.5395	0.1915	−22	·70
δ Cancri	4.0	2.23	3.0	18 31.9	22 17.3	− 9 1.1	+0.4392	0.5392	0.1939	+70	−11
68 Cancri	7.5	2.30	4.2	17 29.0	11 6 13.4	− 1 20.8	−0.0539	0.5376	0.2076	+40	−38
B. A. C. 3103	7.5	2.32	4.6	17 31.5	8 20.1	+ 0 41.7	−0.5391	0.5372	0.2110	+14	·65
π¹ Cancri	6.3	+2.31	− 5.5	+15 24.6	11 12.7	+ 3 28.5	+1.0592	0.5367	−0.2156	+90	+22
π² Cancri	6.0	2.33	5.7	15 22.0	12 33.7	+ 4 47.0	+0.8097	0.5365	0.2177	+90	+ 6
7 Leonis	6.3	2.43	7.3	14 50.2	22 15.8	− 9 50.1	−0.8218	0.5351	0.2320	− 1	75
11 Leonis	6.8	2.43	7.5	14 48.6	23 16.4	− 8 51.5	−1.0282	0.5350	0.2334	−15	·75
18 Leonis	6.0	2.45	8.7	12 16.9	12 3 14.6	− 5 1.1	+0.6503	0.5346	0.2386	+87	− 5
19 Leonis	7.0	+2.44	− 8.8	+12 2.5	3 44.4	− 4 32.3	+0.7791	0.5345	−0.2392	+90	+ 2
21 Leonis	6.8	2.45	8.9	12 19.2	5 20.1	− 2 59.7	+0.1080	0.5344	0.2412	+48	−33
23 Leonis	6.3	2.47	8.6	13 32.7	5 25.2	− 2 54.8	−1.1752	0.5344	0.2414	−25	−76
A Leonis	4.7	2.50	10.4	10 30.0	13 25.8	+ 4 50.2	−0.0115	0.5341	0.2507	+42	−41
44 Leonis	6.0	2.55	11.6	9 18.3	21 38.3	−11 13.3	−0.8801	0.5343	0.2589	− 4	−81
48 Leonis	5.5	+2.56	−12.5	+ 7 28.8	13 2 10.1	− 6 50.3	−0.2084	0.5346	−0.2633	+32	−53

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red. to from 1897.0 Δα	Δδ	Apparent Declination.	Washington Mean Time	Hour Angle H	Y	x′	y′	N.	S.
		s	″	° ′	d h m	h m				°	°
55 Sextantis	6 2	+2 54	13 7	+5 17 0	13 6 12 3	−2 56 1	+0 9604	0 5390	0 2660	+90	+10
57 Sextantis	6 3	2 56	13 4	6 34 7	7 58 1	−2 41 0	1 0355	0 5355	0 2670	14	83
d Leonis	5 3	2 58	14 0	4 10 0	14 18 9	+4 54 7	0 0916	0 5364	0 2711	+38	47
ρ Leonis	6 2	2 57	15 3	2 30 6	17 19 0	+7 48 8	+0 7600	0 5370	0 2726	+90	3
75 Leonis	5 7	2 61	15 7	2 34 3	22 8 7	−11 31 0	0 6150	0 5382	0 2746	+11	85
76 Leonis	6 3	+2 61	15 8	+2 12 6	22 54 5	−10 46 7	0 4714	0 5385	0 2740	+19	71
79 Leonis	6 0	2 63	16 0	+1 58 1	14 1 17 5	−8 28 6	−0 8824	0 5391	0 2756	4	88
υ Leonis	4 4	2 65	17 0	−0 15 6	7 16 4	−2 41 6	0 3043	0 5412	0 2748	+27	60
φ Virginis	5 7	2 75	19 4	8 55 4	15 8 56 6	−1 53 9	+1 1870	0 5536	0 2705	+81	+24
χ Virginis	5 2	2 77	19 4	7 26 1	11 21 1	+0 25 6	0 8974	0 5550	0 2669	−6	90
ψ Virginis	5 2	+2 80	19 6	−8 50 1	17 55 3	+6 45 7	−1 1188	0 5592	0 2636	22	90
75 Virginis	6 0	2 87	19 9	14 50 3	16 10 12 0	−2 33 3	+0 4791	0 5706	0 2444	+64	18
83 Virginis	6 0	2 90	19 6	15 40 0	14 59 2	+3 2 2	+0 1967	0 5741	0 2371	+44	56
84 Virginis	6 5	2 90	19 6	15 15 3	15 26 1	+3 29 0	0 1717	0 5753	0 2364	+17	65
B. A. C. 4788	5 8	2 95	18 9	17 43 5	17 3 25 6	−8 50 2	0 6662	0 5834	0 2145	1	90
42 Libræ	5 7	+3 06	15 0	23 30 2	18 11 47 4	−2 56 6	0 7229	0 6034	0 1327	12	90
b Scorpii	5 3	3 08	14 2	25 26 3	15 42 6	+1 48 7	+0 7021	0 6050	0 1209	+64	5
A¹ Scorpii	5 2	3 07	14 1	25 1 4	16 41 2	+2 44 8	+0 1736	0 6054	0 1180	+33	53
B. A. C. 5253	5 8	3 06	14 3	24 13 8	16 48 3	+2 51 7	0 6215	0 6054	0 1176	−8	90
B. A. C. 5254	5 8	3 05	14 3	23 40 5	16 49 4	+2 52 7	1 1700	0 6054	0 1174	−45	90
3 Scorpii	6 7	+3 07	14 0	24 56 5	17 4 4	+3 7 0	+0 0479	0 6055	0 1168	+27	40
4 Scorpii	6 3	3 08	13 8	25 58 0	17 22 1	+3 24 0	+1 0220	0 6056	0 1159	+64	+19
ω Scorpii	5 4	3 08	13 7	25 40 3	18 56 2	+4 55 0	+0 7388	0 6060	0 1121	+63	1
B. A. C. 5314	5 7	3 07	13 4	25 34 9	20 15 3	+6 9 8	+0 3219	0 6066	0 1089	+41	25
B. A. C. 5347	6 0	3 08	13 0	26 3 2	21 50 5	+7 49 6	+0 6063	0 6070	0 1015	+58	9
σ Scorpii	3 4	+3 05	12 5	25 20 9	19 2 46 7	−11 35 5	0 5170	0 6080	0 0863	−6	80
α Scorpii	1 2	3 04	11 8	26 12 4	5 45 6	−8 44 4	+0 0669	0 6084	0 0766	+24	50
22 Scorpii	5 5	3 03	12 1	24 55 5	6 4 3	−8 26 4	1 2574	0 6084	0 0766	50	90
25 Scorpii	7 0	3 01	10 0	25 20 6	12 7 4	−2 30 0	1 2107	0 6086	0 0559	54	90
B. A. C. 5800	7 5	2 98	8 8	26 51 8	21 4 3	+6 52 3	0 0990	0 6076	0 0229	+11	65
A Ophiuchi	4 0	+2 96	9 1	26 27 2	22 30 5	+7 17 4	0 5184	0 6073	0 0214	−11	8
B. A. C. 5913	6 8	2 96	9 1	26 24 0	22 49 7	+7 35 8	0 5718	0 6072	0 0204	14	84
58 Ophiuchi	6 7	2 96	8 7	26 31 1	23 19 6	+8 4 3	0 4645	0 6071	0 0187	9	74
63 Ophiuchi	5 8	2 97	7 9	28 8 7	20 1 21 2	+10 2 7	+1 0278	0 6065	0 0119	+62	+21
3 Sagittarii	4 6	2 89	6 4	27 47 6	10 18 4	5 25 0	+0 8035	0 6031	+0 0172	+62	+4
B. A. C. 6194	5 1	+2 78	4 4	27 4 8	21 43 6	+5 31 8	+0 4021	0 5965	+0 0490	+47	15
[illegible] Sagittarii	2 0	2 71	4 3	25 26 8	21 1 31 9	+0 10 7	0 9231	0 5918	0 0644	30	90
B. A. C. 6369	6 2	2 63	3 1	25 6 9	8 1 8	8 55 5	[illegible]	0 5855	0 0833	21	90
h Sagittarii	2 3	2 60	2 0	26 25 5	12 5 0	−4 41 8	+0 8280	0 5855	0 0936	+64	+10
φ Sagittarii	5 4	2 49	2 1	25 26 1	20 10 0	+3 42 1	+0 7424	0 5783	0 1160	+65	1
1 Sagittarii	5 4	+2 43	0 7	−24 42 5	22 0 7 5	+6 52 6	+0 4774	0 5746	+0 1258	+52	16
ξ¹ Sagittarii	6 3	2 43	0 7	24 36 9	0 10 2	+6 55 2	+0 3977	0 5746	0 1260	+47	21
ξ² Sagittarii	3 6	2 42	0 8	24 9 9	0 13 7	+6 58 5	0 0075	0 5745	0 1261	+22	47
55 Sagittarii	6 7	2 33	0 1	23 30 7	6 8 5	11 20 0	+0 2032	0 5702	0 1397	+38	12
B. A. C. 6727	6 2	2 33	0 0	23 30 9	6 15 9	−11 12 9	+0 2290	0 5701	0 1400	+33	11
4 Capricorni	6 2	+2 10	+1 7	−22 7 7	22 31 4	+4 27 2	+1 2042	0 5523	+0 1740	+66	+53
ρ Capricorni	6 2	1 99	1 3	18 55 4	23 3 31 5	+9 56 1	1 1849	0 5478	0 1835	58	90
ο Capricorni	5 7	1 98	1 4	18 50 0	8 27 7	9 57 2	0 7669	0 5415	0 1912	7	90
13 Capricorni	6 2	1 89	2 3	18 18 8	15 10 2	3 22 3	+0 1717	0 5372	0 2015	+54	23
22 Capricorni	6 4	[illegible]	2 6	17 33 0	18 7 2	−0 56 9	+0 5511	0 5348	[illegible]	+66	13
θ Capricorni	4 2	[illegible]	+2 8	17 58 5	20 31 4	+1 42 6	+0 7441	0 5326	+0 2087	+71	5
29 Capricorni	5 7	1 68	2 6	15 15 3	24 1 14 7	+6 16 8	0 4148	0 5280	0 2146	+15	66
42 Capricorni	5 5	1 55	3 3	14 [illegible]	13 47 6	5 35 2	+1 2426	0 5190	0 2282	+75	+12
50 Capricorni	6 3	1 47	3 3	12 10 1	19 55 2	2 55 4	[illegible]	[illegible]	0 2306	+5	[illegible]
σ Aquarii	6 8	1 36	3 7	11 19 6	25 4 45 6	+8 57 3	[illegible]	[illegible]	0 2329	+79	+40
θ Aquarii	4 4	+1 28	+3 [illegible]	8 17 7	8 4 3	−11 49 9	1 1359	0 5076	+0 2429	23	90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

APRIL.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
B. A. C. 7774	6.4	+1.29	+3.5	− 9 33.2	25 8 5.4	−11 48.8	+0.2206	0.5076	+0.2419	+53	−30
ρ Aquarii	5.6	1.26	3.3	8 20.2	9 50.6	−10 6.7	−0.6620	0.5066	0.2429	+ 7	−87
B. A. C. 7951	6.7	1.08	3.4	4 45.7	26 0 36.2	+ 4 13.6	−0.8918	0.5002	0.2493	− 5	−90
B. A. C. 7986	5.9	1.06	3.9	5 32.1	4 33.6	+ 8 4.3	+0.9348	0.4988	0.2503	+84	+ 7
B. A. C. 7993	6.6	1.05	3.9	− 5 21.6	5 42.3	+ 9 11.0	+1.0313	0.4984	0.2506	+85	+13
9 Piscium	6.6	+0.87	+3.4	+ 0 33.4	22 9.2	+ 1 10.6	−1.2735	0.4947	+0.2522	−33	−89
12 Piscium	6.8	0.88	4.0	− 1 36.1	23 23.8	+ 2 23.2	+1.4015	0.4945	0.2521	+88	+50
15 Piscium	6.6	0.83	3.6	+ 0 44.7	27 2 42.3	+ 5 36.3	−0.3327	0.4941	0.2518	+23	−64
16 Piscium	5.8	0.82	3.6	1 31.9	3 13.0	+ 6 6.2	−1.0643	0.4940	0.25[illegible]	−16	−88
λ Piscium	4.5	0.80	3.7	1 12.8	6 21.1	+ 9 9.1	+0.0714	0.4938	0.2514	+47	−39
19 Piscium	4.9	+0.77	+3.5	+ 2 55.0	8 45.5	+11 29.6	−1.1896	0.4936	+0.2510	−25	−87
22 Piscium	5.0	0.76	3.8	2 21.5	11 50.7	− 9 30.3	+0.1951	0.4936	0.2504	+54	−32
25 Piscium	6.4	0.77	4.0	1 31.1	12 27.8	− 8 54.2	+1.2716	0.4935	0.2502	+90	+32
45 Piscium	6.9	0.62	4.0	7 7.4	28 6 32.3	+ 8 40.7	−0.4218	0.4949	0.2435	+21	−66
51 Piscium	5.8	0.61	4.4	6 23.3	10 14.2	−11 43.5	+1.2865	0.4954	0.2416	+90	+36
75 Piscium	6.0	+0.49	+4.5	+12 24.3	29 4 53.4	+ 6 24.8	−0.9733	0.4999	+0.2286	−10	−78
η Piscium	3.7	0.44	4.9	14 49.0	18 12.4	− 4 36.9	−0.6772	0.5049	0.2160	+ 7	−75
101 Piscium	6.3	0.44	5.1	14 8.2	20 31.4	− 2 23.8	+0.5680	0.5059	0.2136	+80	− 8
105 Piscium	6.3	+0.43	+5.1	+15 53.1	22 34.1	− 0 24.6	−0.9582	0.5069	+0.2103	− 9	−74
				NEW	MOON.						

MAY.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
23 Tauri	4.7	+0.51	+7.3	+23 37.8	2 13 31.9	−11 22.6	+0.9089	0.5368	+0.1108	+90	+24
η Tauri	3.1	0.52	7.3	23 47.3	14 4.4	−10 51.2	+0.7916	0.5370	0.1097	+90	+17
27 Tauri	4.0	+0.52	+7.3	+23 44.4	14 51.8	−10 5.3	+0.9342	0.5374	+0.1081	+90	+26
28 Tauri	6.2	0.52	7.3	23 49.4	14 52.3	−10 4.9	+0.8392	0.5374	0.1081	+90	+20
B. A. C. 1192	6.0	0.52	7.5	25 16.2	15 22.2	− 9 35.9	0.7150	0.5376	0.1070	+ 2	−65
ρ Tauri	6.0	0.57	7.7	26 12.8	3 0 54.3	− 0 22.8	−0.8401	0.5415	0.0866	− 6	−64
χ Tauri	5.7	0.62	7.6	25 23.3	6 19.8	+ 4 51.9	+0.5142	0.5434	+0.0745	+78	+ 5
125 Tauri	6.0	+0.95	+7.0	+25 50.5	4 17 8.1	− 9 31.1	+1.1801	0.5504	−0.0081	+90	+55
136 Tauri	5.3	1.01	7.2	27 35.4	23 9.9	− 3 41.8	−0.8430	0.5517	0.0229	− 7	−62
139 Tauri	5.3	1.03	6.7	25 56.6	5 1 17.1	− 1 39.0	+0.9187	0.5505	0.0280	+90	+33
ι Geminorum	3.2	1.26	5.2	25 14.1	21 51.6	− 5 47.1	+0.6036	0.5484	0.0756	+87	+10
37 Geminorum	6.3	1.32	5.0	25 30.3	6 2 58.5	− 0 51.0	−0.1192	0.5477	0.0892	+36	−29
39 Geminorum	6.3	+1.34	+5.1	+26 13.0	4 32.2	+ 0 39.8	−1.0982	0.5471	−0.0928	−21	64
40 Geminorum	6.3	1.35	5.0	26 3.3	4 50.2	+ 0 57.2	−0.8889	0.5470	0.0935	−10	−64
ω Geminorum	5.7	1.35	4.4	24 21.8	6 12.3	+ 2 16.5	+0.8267	0.5467	0.0966	+90	+21
48 Geminorum	6.0	1.40	4.1	24 18.1	10 45.0	+ 6 39.9	+0.4296	0.5456	0.1069	+71	− 2
B. A. C. 2363	7.3	1.41	4.2	24 53.2	11 38.7	+ 7 31.7	−0.3090	0.5453	0.1089	+26	−41
52 Geminorum	6.3	+1.42	+4.2	+25 3.9	11 45.4	+ 7 38.2	−0.5002	0.5453	−0.1091	+15	−52
A Geminorum	5.7	1.46	3.9	25 15.0	15 45.2	+11 29.9	−1.1624	0.5442	0.1179	−32	−65
82 Geminorum	6.3	1.58	2.4	23 23.8	7 3 17.7	− 1 21.0	−0.6534	0.5409	0.1423	+ 6	−64
Mars				22 59.0	4 34.7	− 0 6.5	−0.3922	0.5163	0.1401	+21	−90
84 Geminorum	6.8	1.60	1.9	22 36.0	5 22.2	+ 0 39.4	−0.0978	0.5402	0.1466	+37	−34
7 Cancri	6.3	+1.65	+1.3	+22 21.6	10 24.0	+ 5 31.1	−0.5950	0.5386	−0.1966	+10	63
μ² Cancri	5.7	1.67	+1.0	21 52.9	12 13.9	+ 7 17.4	−0.3688	0.5381	0.1601	+23	−50
B. A. C. 2788	6.0	1.72	−0.1	21 4.3	18 7.8	−11 0.3	−0.4759	0.5365	0.1713	+17	57
ι Cancri	5.4	1.79	0.7	20 47.4	23 57.7	− 5 22.0	−1.2009	0.5344	0.1847	−32	69
35 Cancri	6.3	1.79	0.8	19 56.6	8 1 12.7	− 4 9.4	−0.5231	0.5341	0.1839	+14	−61
B. A. C. 2899	7.2	+1.80	−1.4	+19 37.6	2 22.2	− 3 2.2	−0.3974	0.5337	−0.1859	+21	−54
38 Cancri	7.0	1.82	1.2	20 8.5	3 17.2	− 2 9.0	−1.1181	0.5335	0.1876	−24	−70
B. A. C. 2914	7.2	1.82	1.3	19 54.2	3 21.2	− 2 5.0	−0.8762	0.5334	0.1876	− 6	−70
B. A. C. 2919	7.3	1.82	1.3	20 2.0	3 36.0	− 1 50.8	−1.0612	0.5334	0.1880	−19	−70
ι Cancri	7.2	1.82	1.3	19 54.5	3 38.4	− 1 48.4	−0.9860	0.5334	0.1881	20	−70
ε Cancri	7.1	+1.82	−1.3	+20 5.0	3 46.0	− 1 41.1	−1.2467	0.5334	−0.1883	−26	−70

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY

The Star's					At Conjunction in R.A.					Limiting Parallels	
Name	Mag	Reduction from 1897.0 Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
		°	°	° ′	d h m	h m				°	°
δ Cancri	4.0	+1.82	8.1	+18 [illegible]	8 5 40 [illegible]	+0 9.5	+0.14[illegible]	0.5[illegible]	−0.19[illegible]	[illegible]	36
68 Cancri	7.5	1.90	5.2	17 [illegible]	[illegible] 42	+8 [illegible]	0.5[illegible]	[illegible]	0.214[illegible]	+24	54
[illegible] Cancri	[illegible]	1.94	4.4	15 44.6	18 57 [illegible]	10 50.4	+0.[illegible]	[illegible]	0.212[illegible]	[illegible]	[illegible]
[illegible] Cancri	6	1.94	4.[illegible]	15 22.1	20 [illegible]	9 [illegible]	+[illegible]	[illegible]	0.2[illegible]	[illegible]	[illegible]
7 Leonis	6.[illegible]	2.05	6.0	14 50.2	9 6 20.1	+0 19	1.[illegible]	[illegible]	0.2[illegible]	22	[illegible]
11 Leonis	6.8	+2.07	[illegible]	+14 48.[illegible]	7 22.[illegible]	+1 24	1.[illegible]	[illegible]	0.22[illegible]	45	[illegible]
18 Leonis	6.[illegible]	2.[illegible]	[illegible]4	12 16.[illegible]	11 2[illegible]	+5 0.[illegible]	+0.[illegible]	0.5[illegible]	0.214[illegible]	[illegible]	2[illegible]
19 Leonis	[illegible]	2.09	7.5	12 [illegible]	11 [illegible]	+5 [illegible]	+0.[illegible]	0.5[illegible]	0.214[illegible]	[illegible]	14
21 Leonis	6.[illegible]	2.10	7.6	12 19.[illegible]	13 [illegible]	+7 5.[illegible]	0.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
A Leonis	4.7	2.17	9.0	10 30.0	21 5[illegible]	8 49.1	0.[illegible]	0.[illegible]	0.2[illegible]	+29	[illegible]
44 Leonis	6.[illegible]	+2.24	10.2	+9 1[illegible]	10 6 2[illegible]	0 5[illegible]	1.1[illegible]	0.5[illegible]	0.[illegible]	24	81
48 Leonis	5.5	2.2[illegible]	11.2	7 2[illegible]	11 7.[illegible]	+3 55.0	0.4[illegible]	0.5[illegible]	0.2[illegible]	[illegible]	[illegible]
35 Sextantis	6.2	2.2[illegible]	11.6	5 17	15 1[illegible]	+7 [illegible]	+0.[illegible]	0.5[illegible]	0.2[illegible]	[illegible]	5
[illegible] Leonis	5.3	2.31	13.6	4 10.[illegible]	21 5[illegible]	7 5[illegible]	−0.[illegible]	0.5[illegible]	0.[illegible]	[illegible]	[illegible]
ρ Leonis	6.2	2.34	14.4	2 30.6	11 2 45.0	−4 5[illegible]	+0.5[illegible]	0.5[illegible]	0.2[illegible]	[illegible]	15
75 Leonis	5.[illegible]	+2.39	14.7	+2 35.[illegible]	7 41.6	0 8.[illegible]	−0.[illegible]	0.5[illegible]	0.2[illegible]	[illegible]	[illegible]
76 Leonis	[illegible]	2.39	14.9	2 12.[illegible]	8 [illegible]	+0 17.6	0.[illegible]	[illegible]	0.[illegible]	+6	[illegible]
79 Leonis	6.[illegible]	2.41	15.1	+1 5[illegible]	10 5[illegible]	+3 0[illegible]	1.[illegible]	[illegible]	0.[illegible]	2[illegible]	[illegible]
ν Leonis	4.4	2.44	16.[illegible]	−0 15.6	17 7.[illegible]	+8 5[illegible]	0.52[illegible]	0.51[illegible]	0.2[illegible]	+1[illegible]	74
ξ Virginis	5.7	2.6[illegible]	19.0	8 55.4	12 19 25.[illegible]	+10 28.[illegible]	+1.[illegible]	0.5[illegible]	0.2[illegible]	[illegible]	+15
χ Virginis	5.2	+2.6[illegible]	−19.5	−7 [illegible]	21 12.6	11 14.[illegible]	1.04[illegible]	0.5[illegible]	0.2[illegible]	[illegible]	[illegible]
ψ Virginis	5.2	2.[illegible]	1[illegible]	8 50.1	13 4 [illegible]	4 47	1.2[illegible]	[illegible]	0.[illegible]	14	[illegible]
75 Virginis	[illegible]	2.[illegible]	[illegible]	14 [illegible]	21 [illegible]	12 55.[illegible]	+0.[illegible]	[illegible]	0.2[illegible]	[illegible]	21
81 Virginis	[illegible]	[illegible]	20.[illegible]	15 40.0	14 2 5[illegible]	−8 14.[illegible]	−0.[illegible]	[illegible]	0.2[illegible]	+41	[illegible]
85 Virginis	6.[illegible]	3.0[illegible]	20.7	15 15.[illegible]	2 2[illegible]	7 4[illegible]	−0.4[illegible]	0.5[illegible]	0.[illegible]	+14	[illegible]
B.A.C. 4[illegible]	[illegible]	+3.1[illegible]	[illegible]	17 4[illegible]	14 2[illegible]	+3 4[illegible]	−0.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
42 Librae	[illegible]	3.[illegible]	[illegible]	23 2[illegible]	15 22 [illegible]	+10 [illegible]	−0.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
δ Scorpii	[illegible]	3.[illegible]	[illegible]	22 [illegible]	16 2 [illegible]	[illegible]	+0.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
β[illegible] Scorpii	[illegible]	3.[illegible]	15.9	25 [illegible]	3 24	8 44.[illegible]	+0.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
B.A.C. 5[illegible]	[illegible]	3.[illegible]	15.8	24 1[illegible]	3 [illegible]	8 17	−0.5[illegible]	[illegible]	0.[illegible]	4	[illegible]
B.A.C. 5[illegible]	5.8	+3.[illegible]	15.8	23 40.[illegible]	3 [illegible]	8 [illegible]	1.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
[illegible] Scorpii	6.7	3.[illegible]	15.[illegible]	24 [illegible]	3 4[illegible]	8 22.[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
[illegible] Scorpii	6.[illegible]	[illegible]	[illegible]	25 58.[illegible]	4 4[illegible]	8 [illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
[illegible] Scorpii	[illegible]	[illegible]	[illegible]	25 4[illegible]	5 1[illegible]	6 55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. 5[illegible]	[illegible]	3.[illegible]	[illegible]	25 3[illegible]	6 [illegible]	5 2[illegible]	+0.[illegible]	0.[illegible]	0.[illegible]	+45	[illegible]
B.A.C. 5[illegible]	[illegible]	+3.[illegible]	1[illegible]	2[illegible]	8 [illegible]	3 44.[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
[illegible] Scorpii	[illegible]	[illegible]	[illegible]	25 [illegible]	21 [illegible]	+0 4[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	26 1[illegible]	1[illegible]	+3 [illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
22 [illegible]	[illegible]	[illegible]	[illegible]	24 [illegible]	1[illegible]	+3 [illegible]	1	[illegible]	0.[illegible]	[illegible]	[illegible]
25 [illegible]	[illegible]	[illegible]	11.[illegible]	25 [illegible]	22 [illegible]	+9 [illegible]	1.[illegible]	[illegible]	0.[illegible]	42	[illegible]
B.A.C. [illegible]	[illegible]	[illegible]	9.[illegible]	[illegible]	17 8 [illegible]	5 1[illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
A [illegible]	[illegible]	[illegible]	[illegible]	26 [illegible]	8 [illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	[illegible]	[illegible]	26 24.1	8 [illegible]	4 [illegible]	0.[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
58 [illegible]	[illegible]	[illegible]	9.[illegible]	[illegible]	9 2[illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45 [illegible]	5.[illegible]	3.[illegible]	5.[illegible]	[illegible]	11 2[illegible]	2 [illegible]	[illegible]	[illegible]	0.[illegible]	[illegible]	[illegible]
3 Sagittarii	[illegible]	[illegible]	−[illegible]	2[illegible]	20 [illegible]	+6 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	[illegible]	[illegible]	2[illegible]	18 7 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
λ [illegible]	[illegible]	[illegible]	[illegible]	2[illegible]	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	[illegible]	[illegible]	2[illegible]	1[illegible]	+2 2[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Sagittarii	[illegible]	[illegible]	[illegible]	[illegible]	21 [illegible]	+6 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Sagittarii	[illegible]	[illegible]	[illegible]	2[illegible]	19 4 [illegible]	10 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	24 [illegible]	8 [illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	24 [illegible]	8 [illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	24 [illegible]	8 [illegible]	6 [illegible]	−0 [illegible]	[illegible]	0	[illegible]	[illegible]
53 Sagittarii	[illegible]	[illegible]	[illegible]	2[illegible]	14 [illegible]	1 [illegible]	[illegible]	[illegible]	0.[illegible]	+12	18
B.A.C. 6[illegible]	6.2	+3.22	+2.5	−21 59.[illegible]	14 45.6	0 5[illegible]	[illegible]	[illegible]	+0.24[illegible]	+55	17

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

MAY.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m	°			°	°
ο Capricorni	6.2	+2.88	+5.0	−18 55.4	20 11 42.9	− 4 44.8	−0.8930	0.5565	+0.1871	−15	−90
υ Capricorni	5.7	2.81	5.6	18 30.0	16 11.3	− 0 25.8	−0.4778	0.5518	0.1946	+ 9	−73
19 Capricorni	6.1	2.72	6.5	18 18.7	22 48.8	+ 5 57.9	+0.6515	0.5451	0.2048	+70	− 8
21 Capricorni	6.4	2.68	6.8	17 55.8	21 1 35.4	+ 8 39.0	+0.8310	0.5423	0.2087	+72	+ 3
θ Capricorni	4.1	2.65	7.0	17 38.4	3 55.9	+10 54.7	+1.0230	0.5400	0.2118	+72	+15
29 Capricorni	5.7	+2.56	+7.0	−15 35.8	8 32.1	− 8 38.1	−0.1176	0.5356	+0.2176	+30	−49
50 Capricorni	6.9	2.32	7.6	12 10.1	23 29.7	+ 5 50.9	−0.3457	0.5226	0.2327	+21	−63
θ Aquarii	4.4	2.10	8.0	8 17.6	22 14 43.4	− 3 23.3	−0.8272	0.5117	0.2432	− 3	−90
B. A. C. 7774	6.4	2.12	8.4	9 33.1	14 44.5	− 3 22.2	+0.5160	0.5117	0.2432	+71	−16
ρ Aquarii	5.6	2.08	8.2	8 20.2	16 27.9	− 1 41.9	−0.3590	0.5110	0.2443	+22	−63
B. A. C. 7951	6.7	+1.88	+8.0	− 4 45.7	23 7 0.6	−11 34.4	−0.5953	0.5032	+0.2498	+11	−81
B. A. C. 7986	5.9	1.85	8.8	5 32.0	10 55.0	− 7 46.7	+1.2148	0.5012	0.2505	+84	+27
B. A. C. 7993	6.6	1.84	8.9	− 5 21.5	12 3.0	− 6 40.7	+1.3102	0.5008	0.2507	+85	+37
9 Piscium	6.6	1.63	8.0	+ 0 33.5	24 4 20.4	+ 9 9.3	−0.9970	0.4958	0.2514	−10	−89
15 Piscium	6.6	1.58	8.1	0 44.8	8 51.7	−10 26.8	−0.0665	0.4950	0.2509	+39	−40
16 Piscium	5.8	+1.57	+7.9	+ 1 32.0	9 22.3	− 9 57.1	−0.7950	0.4949	+0.2508	+ 1	−88
λ Piscium	4.5	1.54	8.2	1 12.9	12 29.0	− 6 55.5	+0.3333	0.4945	0.2503	+62	−25
19 Piscium	4.9	1.51	7.8	2 55.0	14 52.5	− 4 36.0	−0.9288	0.4942	0.2498	− 7	−87
22 Piscium	5.0	1.49	8.2	2 21.6	17 56.8	− 1 36.8	+0.4457	0.4940	0.2490	+69	−20
45 Piscium	6.9	1.31	7.8	7 7.4	25 12 34.5	− 7 29.6	−0.2007	0.4945	0.2415	+32	−52
75 Piscium	6.0	+1.11	+7.3	+12 24.4	26 10 54.3	− 9 46.9	−0.7965	0.4999	+0.2261	0	−66
η Piscium	3.7	1.03	7.2	14 49.0	27 0 15.5	+ 3 11.5	−0.5300	0.5040	0.2135	+15	−67
101 Piscium	6.3	1.02	7.4	14 8.2	2 32.5	+ 5 24.6	+0.7090	0.5050	0.2111	+90	0
103 Piscium	6.8	1.00	7.1	16 6.3	4 21.9	+ 7 10.9	−1.0913	0.5057	0.2091	−20	−74
105 Piscium	6.3	1.00	7.1	15 53.1	4 35.2	+ 7 23.9	−0.8011	0.5060	0.2089	− 1	−74
3 Arietis	6.0	+0.98	+7.0	+16 53.9	8 12.8	+10 55.1	−1.1762	0.5074	+0.2048	−27	−73
4 Arietis	5.7	0.97	7.1	16 26.7	9 3.3	+11 44.2	−0.5011	0.5078	0.2038	+16	−64
ι Arietis	5.7	0.95	7.1	17 19.0	13 50.0	− 7 37.4	−0.5088	0.5100	0.1980	+15	−64
15 Arietis	5.7	0.91	7.0	19 1.0	20 40.0	− 0 59.5	−1.0749	0.5132	0.1891	−20	−71
B. A. C. 686	7.2	0.91	7.0	19 8.0	22 19.5	+ 0 37.1	−0.8941	0.5132	0.1869	− 7	−71
θ Arietis	5.7	+0.90	+6.9	+19 25.6	28 0 30.0	+ 2 43.7	−0.8163	0.5153	+0.1838	− 2	−71
23 Arietis	7.5	0.89	7.0	19 13.1	1 1.3	+ 3 14.1	−0.4892	0.5155	0.1831	+16	−60
26 Arietis	6.0	0.88	7.1	19 24.0	6 49.9	+ 8 52.1	+0.3479	0.5186	0.1745	+64	−14
ν Arietis	5.7	0.86	6.9	21 31.0	10 54.3	−11 10.9	−1.3088	0.5197	0.1683	−49	−68
μ Arietis	6.0	0.87	7.2	19 34.5	12 42.0	− 9 26.5	+1.1511	0.5217	0.1654	+90	+36
ε Arietis	4.6	+0.84	+7.2	+20 55.8	20 59.6	− 1 24.3	+0.9587	0.5262	+0.1516	+90	+23
64 Arietis	5.7	+0.81	+6.9	+24 21.7	29 9 4.2	+10 17.4	−1.1570	0.5326	+0.1295	+31	−66
				NEW	*MOON.*						

JUNE.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
136 Tauri	5.3	+0.99	+6.0	+27 35.4	1 4 55.6	+ 3 51.3	−0.9644	0.5529	−0.0248	−16	−62
139 Tauri	5.3	1.02	5.8	25 56.6	7 2.3	+ 5 53.7	+0.7943	0.5529	0.0300	+90	+25
ι Geminorum	3.2	1.16	4.7	25 14.1	2 3 33.1	+ 1 41.8	+0.4403	0.5504	0.0791	+72	+ 1
37 Geminorum	6.3	1.20	4.4	25 30.3	8 39.8	+ 6 37.9	−0.2919	0.5492	0.0911	+26	−38
39 Geminorum	6.3	+1.21	+4.4	+26 13.0	10 13.5	+ 8 8.5	−1.2147	0.5488	−0.0947	−40	−64
40 Geminorum	6.3	1.22	4.3	26 3.3	10 31.4	+ 8 25.7	−1.0661	0.5487	0.0954	23	−64
ω Geminorum	5.7	1.22	4.0	24 21.8	11 53.4	+ 9 45.0	+0.6497	0.5484	0.0985	+90	+10
48 Geminorum	6.0	1.25	3.6	24 18.1	16 26.1	− 9 51.7	+0.2451	0.5470	0.1087	+57	−12
52 Geminorum	6.3	1.27	3.7	25 3.9	17 26.5	− 8 53.3	−0.6970	0.5468	0.1109	+ 3	−64
58 Geminorum	6.3	+1.29	+3.1	+23 8.7	21 28.7	− 4 59.4	+0.9289	0.5455	−0.1198	+90	+25
82 Geminorum	6.3	1.38	2.2	23 23.8	3 9 0.4	+ 6 9.4	−0.8657	0.5414	0.1438	− 7	−67
84 Geminorum	6.8	1.39	1.8	22 30.0	11 5.4	+ 8 9.9	−0.3056	0.5406	0.1479	+26	−45
7 Cancri	6.3	1.43	1.3	22 21.6	16 8.4	−10 57.1	−0.8173	0.5387	0.1578	− 3	−68
μ¹ Cancri	5.7	1.44	1.0	21 52.9	17 58.9	− 9 10.2	−0.5929	0.5380	0.1612	+10	63
B. A. C. 2788	6.0	+1.48	+0.1	+21 4.4	23 55.1	− 3 25.7	−0.7086	0.5357	−0.1721	+ 4	−69

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS

JUNE

The Star's Name	Mag.	Reduction from Sun: Δα	Δδ	Apparent Declination	At Conjunction in R.A.: Washington Mean Time	Hour Angle H	Y	x'	y'	Limiting Parallels: N	S
		s	°	°	d h m	h m				°	°
θ Cancri	[illegible]	+1 50	0 8	+18 26 5	6 [illegible]	+1 47 [illegible]	+1 1710	[illegible]	[illegible]	+90	+96
35 Cancri	6 3	1 53	0 6	19 [illegible]	[illegible]	+1 [illegible]	[illegible]	[illegible]	[illegible]	+1	[illegible]
B.A.C. 2890	7 2	1 54	0 8	19 37 6	8 [illegible]	+4 [illegible]	[illegible]	[illegible]	[illegible]	+8	[illegible]
B.A.C. 2914	7 2	1 55	0 9	19 54 2	9 [illegible]	+5 [illegible]	[illegible]	[illegible]	[illegible]	24	[illegible]
B.A.C. 2919	7 3	1 55	0 9	20 [illegible]	9 [illegible]	+5 4[illegible] 5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Cancri	7 2	+1 55	0 9	+19 54 5	9 [illegible]	+5 51 0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
d Cancri	4 9	1 [illegible]	1 0	18 [illegible]	11 11 4	+7 50 1	[illegible]	[illegible]	[illegible]	+37	[illegible]
B.A.C. 3103	7 5	1 64	2 7	17 [illegible]	21 [illegible]	6 [illegible]	[illegible]	[illegible]	0 2077	22	[illegible]
[illegible] Cancri	6 3	1 [illegible]	3 5	15 24 6	8 0 [illegible]	3 9 4	[illegible]	[illegible]	0 2119	[illegible]	[illegible]
[illegible] Cancri	[illegible]	1 [illegible]	3 7	15 22 2	2 24 2	−1 47 4	[illegible]	[illegible]	0 211[illegible]	+53	23
18 Leonis	[illegible]	+1 75	[illegible]	+12 17 0	17 [illegible]	10 55 5	+0 [illegible]	[illegible]	0 2327	+40	33
19 Leonis	[illegible]	1 77	[illegible]	12 [illegible] 6	18 [illegible]	10 23 2	+0 [illegible]	0 [illegible]	0 2[illegible]	[illegible]	[illegible]
21 Leonis	6 8	1 [illegible]	[illegible]	12 10 3	19 [illegible]	8 45 8	0 4[illegible]	0 [illegible]	0 2[illegible]	[illegible]	[illegible]
A Leonis	4 7	1 85	7 7	10 [illegible]	6 4 [illegible]	0 [illegible]	−0 [illegible]	[illegible]	0 2[illegible]	[illegible]	[illegible]
43 Leonis	6 5	1 90	9 4	7 3 8	12 4 2	+6 50 1	+1 1 [illegible]	[illegible]	0 2[illegible]	[illegible]	[illegible]
48 Leonis	5 5	+1 96	9 8	+7 28 9	17 57 [illegible]	11 2[illegible] 0	−0 74[illegible]	[illegible]	0 2540	+4	[illegible]
53 Sextantis	6 2	1 [illegible]	11 1	5 1[illegible] 0	22 14 [illegible]	7 1[illegible]	+0 [illegible]	0 51[illegible]	0 [illegible]	[illegible]	[illegible]
d Leonis	[illegible]	2 [illegible]	12 1	4 [illegible] 0	7 6 50 0	+1 1 [illegible]	[illegible]	[illegible]	0 [illegible]	[illegible]	[illegible]
[illegible] Leonis	[illegible]	2 0[illegible]	12 9	2 [illegible] 7	10 1 0	+4 6 4	+0 2[illegible]	0 [illegible]	0 2[illegible]	[illegible]	[illegible]
75 Leonis	5 7	2 13	13 2	2 34 4	15 [illegible]	+9 4 3	−1 [illegible]	[illegible]	0 2[illegible]	21	[illegible]
76 Leonis	6 3	+2 13	13 4	+2 2[illegible]	15 [illegible]	+9 51 3	0 9[illegible]	[illegible]	0 26[illegible]	10	[illegible]
[illegible] Leonis	4 4	2 21	14 [illegible]	0 15 [illegible]	8 0 4[illegible]	5 [illegible]	0 [illegible]	[illegible]	0 2[illegible]	+2	[illegible]
[illegible] Virginis	[illegible]	2 4[illegible]	[illegible]	8 [illegible]	9 3 [illegible]	3 [illegible]	[illegible]	[illegible]	0 2[illegible]	[illegible]	[illegible]
[illegible] Virginis	[illegible]	2 [illegible]	[illegible] 7	7 [illegible]	6 [illegible]	0 [illegible]	1 2[illegible]	0 5[illegible] 1	0 2[illegible]	[illegible]	[illegible]
75 Virginis	[illegible]	2 85	20 7	14 50 3	10 6 [illegible] 6	1 4[illegible]	+0 2502	0 5[illegible]	0 2[illegible]	[illegible]	[illegible]
83 Virginis	6 [illegible]	+2 94	20 8	15 40 0	11 2[illegible]	+3 [illegible]	[illegible]	0 5 [illegible]	0 2[illegible]	+12	4[illegible]
85 Virginis	[illegible]	2 [illegible]	[illegible]	15 [illegible]	11 5[illegible]	+3 [illegible]	[illegible]	[illegible]	0 2[illegible]	+6	[illegible]
B.A.C. 4722	[illegible]	3 1[illegible]	2[illegible] 6	17 4[illegible]	11 [illegible] 14	8 54 4	[illegible]	[illegible]	0 2[illegible]	[illegible]	[illegible]
42 Librae	[illegible]	3 [illegible]	17 5	23 [illegible]	12 [illegible]	1 4	0 [illegible]	[illegible]	0 1[illegible]	11	[illegible]
[illegible] Scorpii	5 3	3 [illegible]	17 1	25 [illegible]	18 [illegible]	+2 41 2	[illegible]	[illegible]	0 11[illegible]	+64	1
A' Scorpii	5 2	+3 [illegible]	1[illegible]	25 [illegible]	13 [illegible]	+3 37 1	+0 2[illegible]	[illegible]	0 1134	+15	[illegible]
B.A.C. 5255	5 8	3 [illegible]	[illegible]	24 [illegible]	14 4 1	+3 41[illegible]	0 [illegible]	[illegible]	0 [illegible]	[illegible]	[illegible]
B.A.C. 5454	[illegible]	[illegible]	[illegible]	23 40 5	14 [illegible]	+3 44 [illegible]	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3 [illegible]	[illegible]	[illegible]	[illegible]	24 [illegible]	14 [illegible]	+3 [illegible]	[illegible]	[illegible]	0 11[illegible]	[illegible]	[illegible]
4 [illegible]	[illegible]	[illegible]	[illegible]	25 [illegible]	14 [illegible]	+4 [illegible]	+1 [illegible]	[illegible]	0 11[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	+[illegible]	[illegible]	25 4[illegible]	15 51 4	+5 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	[illegible]	[illegible]	25 34 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+44	[illegible]
B.A.C. [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 11 6	+8 4 1	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 21 0	21 [illegible]	10 4[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 12 4	12 2 [illegible]	7 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25 [illegible]	[illegible]	+4 [illegible]	12 5	[illegible]	9 [illegible]	1 [illegible]	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31 [illegible]	[illegible]	4 [illegible]	11 0	[illegible]	[illegible]	+4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	4 1[illegible]	[illegible]	[illegible]	[illegible]	+[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
A [illegible]	[illegible]	4 1[illegible]	10 6	[illegible]	[illegible]	+[illegible] 41	[illegible]	[illegible]	[illegible]	2	[illegible]
B.A.C. [illegible]	[illegible]	4 1[illegible]	10 5	[illegible]	[illegible]	+[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]
5[illegible]	[illegible]	+4 1[illegible]	9 [illegible]	[illegible]	[illegible]	+[illegible]	[illegible]	[illegible]	[illegible]	+1	[illegible]
41 [illegible]	[illegible]	4 1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+41
[illegible]	4 [illegible]	4 2[illegible]	[illegible]	[illegible]	14 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	+5 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	+[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	[illegible]	+4 4	1 1	[illegible]	15 [illegible]	9 2 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4 1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	+1 4[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	+[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4 [illegible]	[illegible]	[illegible]	[illegible]	+5 24 4	0 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Sagittarii	5 [illegible]	+4 [illegible]	+[illegible] 8	24 9 8	[illegible]	+5 2[illegible]	+0 9 [illegible]	0 [illegible]	0 11[illegible]	+48	[illegible]

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m				°	°
53 Sagittarii	6.7	+3.99	+ 4.3	−23 39.7	16 0 43.9	+10 51.3	+0.5847	0.5859	+0.1471	+60	−10
B. A. C. 6727	6.2	3.99	4.3	23 39.8	0 50.9	+10 58.0	+0.6044	0.5858	0.1474	+61	9
σ Capricorni	5.6	3.76	7.3	19 26.3	16 53.6	+ 2 23.8	−1.0088	0.5692	0.1827	−24	−90
π Capricorni	5.1	3.70	7.8	18 32.8	20 14.7	+ 5 37.5	−1.2933	0.5656	0.1891	−51	−90
o Capricorni	6.2	3.70	8.1	18 55.3	21 20.0	+ 6 40.4	−0.7059	0.5645	0.1911	− 5	−90
υ Capricorni	5.7	+3.64	+ 9.0	−18 29.9	17 1 41.8	+10 52.7	−0.2882	0.5599	+0.1987	+18	−60
19 Capricorni	6.1	3.57	10.2	18 18.6	8 9.3	− 6 53.6	+0.8376	0.5532	0.2090	+72	+ 3
21 Capricorni	6.4	3.54	10.6	17 55.8	10 51.5	− 4 17.0	+1.0188	0.5504	0.2129	+72	+15
θ Capricorni	4.1	3.51	10.9	17 38.4	13 8.4	− 2 4.8	+1.2112	0.5481	0.2160	+72	+31
29 Capricorni	5.7	3.42	11.2	15 35.8	17 37.4	+ 2 15.1	+0.0922	0.5437	0.2218	+41	−38
50 Capricorni	6.9	+3.20	+12.4	−12 10.0	18 8 11.3	− 7 39.7	−0.1189	0.5303	+0.2368	+33	−49
36 Aquarii	6.3	3.02	12.9	8 41.3	19 20.7	+ 3 8.7	−1.0700	0.5215	0.2449	−19	−90
θ Aquarii	4.4	2.97	13.2	8 17.6	23 1.9	+ 6 43.1	−0.5814	0.5188	0.2470	+11	−80
B. A. C. 7774	6.4	2.98	13.6	9 33.0	23 3.0	+ 6 44.2	+0.7461	0.5188	0.2470	+78	− 4
ρ Aquarii	5.6	2.96	13.4	8 20.1	19 0 43.8	+ 8 21.8	−0.1137	0.5176	0.2478	+35	−49
B. A. C. 7951	6.7	+2.73	+13.6	− 4 45.2	14 55.7	− 1 51.7	−0.3441	0.5090	+0.2528	+24	−62
9 Piscium	6.6	2.48	13.7	+ 0 33.6	20 11 48.8	− 5 34.6	−0.7416	0.5005	0.2535	+ 4	−84
15 Piscium	6.6	2.44	13.7	0 44.9	16 15.1	− 1 15.7	+0.1791	0.4993	0.2527	+52	−34
16 Piscium	5.8	2.43	13.5	1 32.1	16 45.0	− 0 46.7	−0.5433	0.4992	0.2526	+15	−76
λ Piscium	4.5	2.40	13.7	1 13.0	19 48.7	+ 2 11.9	+0.5715	0.4984	0.2518	+78	−13
19 Piscium	4.9	+2.37	+13.3	+ 2 55.1	22 9.8	+ 4 29.0	−0.6771	0.4981	+0.2513	+ 8	−86
22 Piscium	5.0	2.35	13.7	2 21.7	21 1 10.9	+ 7 25.0	+0.6834	0.4976	0.2503	+89	− 7
d Piscium	5.3	2.18	12.7	7 37.3	16 46.6	− 1 25.3	−1.1835	0.4967	0.2435	−25	−83
45 Piscium	6.9	2.16	13.0	7 7.5	19 33.0	+ 1 16.4	+0.0306	0.4967	0.2418	+44	−40
75 Piscium	6.0	1.95	11.8	12 24.4	22 17 40.0	− 1 13.6	−0.5837	0.5005	0.2255	+12	−72
η Piscium	3.7	+1.84	+11.3	+14 49.1	23 6 56.1	+11 39.7	−0.3355	0.5043	+0.2125	+25	−55
101 Piscium	6.3	1.83	11.4	14 8.3	9 12.6	−10 7.7	+0.8944	0.5051	0.2100	+90	+11
103 Piscium	6.8	1.81	10.8	16 6.4	11 1.3	− 8 22.1	−0.9001	0.5058	0.2079	− 7	−74
105 Piscium	6.3	1.81	11.0	15 53.2	11 14.6	− 8 9.2	−0.6114	0.5059	0.2077	+10	−71
3 Arietis	6.0	1.78	10.7	16 54.0	14 51.3	− 4 38.8	−0.9899	0.5073	0.2035	−13	−73
4 Arietis	5.7	+1.78	+11.0	+16 26.8	15 41.6	− 3 49.9	−0.3180	0.5077	+0.2025	+26	−53
ι Arietis	5.7	1.74	10.6	17 19.0	20 27.1	+ 0 47.3	−0.3332	0.5097	0.1966	+25	−53
15 Arietis	5.7	1.70	10.1	19 1.0	24 3 15.9	+ 7 23.9	−0.9060	0.5128	0.1876	− 8	71
B. A. C. 686	7.2	1.69	10.5	19 8.1	4 55.2	+ 9 0.3	−0.7296	0.5136	0.1853	+ 3	71
θ Arietis	5.7	1.67	10.0	19 25.6	7 5.4	+11 6.6	−0.6550	0.5147	0.1822	+ 8	−69
23 Arietis	7.5	+1.67	+10.0	+19 13.1	7 36.7	+11 37.0	−0.3295	0.5149	+0.1815	+25	51
26 Arietis	6.0	1.63	10.2	19 24.1	13 24.4	− 6 45.9	+0.4960	0.5179	0.1729	+75	7
ν Arietis	5.7	1.61	9.4	21 31.1	17 28.4	− 2 49.3	−1.1630	0.5200	0.1666	29	−68
μ Arietis	6.0	1.60	9.8	19 34.5	19 16.0	− 1 5.0	+1.2896	0.5209	0.1643	+90	+51
ι Arietis	4.6	1.57	9.4	20 55.9	25 3 32.9	+ 6 56.6	+1.0840	0.5255	0.1499	+90	+32
64 Arietis	5.7	+1.50	+ 8.3	+24 21.7	15 36.5	− 5 22.7	−1.0469	0.5319	+0.1278	21	66
7 Tauri	6.0	1.48	8.3	24 7.3	20 25.8	− 0 42.7	−0.1801	0.5344	0.1184	+32	36
11 Tauri	6.7	1.47	8.1	24 59.9	23 23.9	+ 2 9.5	−0.8107	0.5359	0.1125	− 4	65
ζ Pleiadum	6.3	1.46	8.2	23 58.1	26 1 18.6	+ 4 0.4	+0.5382	0.5369	0.1081	+80	+ 3
17 Tauri	4.3	1.46	8.3	23 47.5	1 20.9	+ 4 2.6	+0.7375	0.5369	0.1085	+90	+14
18 Tauri	6.3	+1.46	+ 8.1	+24 31.1	1 28.2	+ 4 9.7	0.0550	0.5369	+0.1083	+40	27
19 Tauri	5.0	1.46	8.2	24 8.8	1 29.8	+ 4 11.2	+0.3603	0.5370	0.1082	+65	− 6
20 Tauri	5.0	1.46	8.2	24 2.9	1 47.3	+ 4 28.2	+0.5007	0.5371	0.1076	+70	+ 1
21 Tauri	7.0	1.46	8.2	24 14.1	1 49.4	+ 4 30.2	+0.2071	0.5371	0.1075	+61	− 9
22 Tauri	7.0	1.46	8.2	24 12.5	1 53.4	+ 4 34.1	+0.3338	0.5371	0.1074	+63	− 7
23 Tauri	4.7	+1.46	+ 8.3	+23 37.8	2 1.8	+ 4 42.2	+0.9005	0.5372	+0.1071	+90	+30
η Tauri	3.1	1.46	8.2	23 47.3	2 34.2	+ 5 13.5	+0.8716	0.5375	0.1060	+90	+22
26 Tauri	7.0	1.45	8.3	23 32.6	3 15.5	+ 5 53.5	+1.2169	0.5378	0.1046	+90	+49
27 Tauri	4.0	1.45	8.2	23 44.4	3 21.3	+ 5 59.2	+1.0075	0.5379	0.1044	+90	+31
28 Tauri	6.2	1.45	8.2	23 49.4	3 21.9	+ 5 59.7	+0.9161	0.5379	0.1043	+90	+24
B. A. C. 1192	6.0	+1.45	+ 7.8	+25 16.2	3 51.7	+ 6 28.5	−0.6358	0.5382	+0.1033	+ 7	−61

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JUNE

The Star's Name	Mag.	Red. to from 1897.0 Δα	Δδ	Apparent Declination	At Conjunction in R.A. Washington Mean Time	Hour Angle H	Y	x'	y'	Limiting Parallels N	S
		s	"	° '	d h m	h m				°	°
ε Tauri	6.0	+1.42	+7.4	+26 12.8	26 13 20.9	8 21.2	-0.7064	0.5427	+0.0810	1	64
ι Tauri	5.7	1.41	7.4	25 21.1	18 44.5	-3 8.4	[illegible]	[illegible]	+0.0710	[illegible]	+7
125 Tauri	6.0	+1.36	+5.7	+25 [illegible]	28 5 19.1	+6 11.5	+1.0725	0.5541	0.0117	+50	+45

JULY

The Star's Name	Mag.	Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
B.A.C. 2758	6.0	+1.47	-0.2	+21 4.3	1 5 42.0	+4 7.6	-0.8011	0.5[illegible]	0.1744	2	69
θ Cancri	5.7	1.47	0.9	18 [illegible]	22 1.[illegible]	+9 17.5	[illegible]	0.5[illegible]	0.1[illegible]	+50	[illegible]
35 Cancri	6.3	1.49	0.8	19 56.6	22 45.5	+10 58.5	-0.[illegible]	0.55[illegible]	0.1[illegible]	-6	70
B.A.C. 2939	7.2	+1.49	0.9	+19 57.6	23 55.9	-11 55.7	[illegible]	[illegible]	[illegible]	+2	69
δ Cancri	4.0	1.50	1.5	18 31.9	27 14.0	-8 42.0	[illegible]	0.5543	[illegible]	+32	45
[illegible] Cancri	6.0	1.51	2.4	15 5[illegible]	23 26.7	-2 41.2	+1.2[illegible]	0.5[illegible]	[illegible]	+50	+45
68 Cancri	7.5	1.53	2.3	17 29.2	8 1 25.2	-0 46.5	0.7454	0.5511	[illegible]	+3	[illegible]
B.A.C. 3103	7.3	1.55	2.5	17 31.6	3 56.4	+2 26.5	1.225[illegible]	0.55[illegible]	0.2098	33	72
α Cancri	6.3	+1.55	-3.0	+15 24.6	6 35.4	+4 13.5	+0.[illegible]	0.5[illegible]	0.2140	+67	15
[illegible] Cancri	6.0	1.55	3.3	15 22.1	7 50.5	+5 35.1	+0.1411	0.5[illegible]	0.2148	+51	20
18 Leonis	6.0	1.61	5.4	12 17.0	23 19.0	-3 34.0	-0.[illegible]	0.5219	0.2342	+41	41
19 Leonis	7.0	1.61	5.4	12 2.6	23 50.2	-3 1.9	+0.0[illegible]	0.52[illegible]	0.2348	+48	34
21 Leonis	6.5	1.62	5.5	12 19.3	8 1 50.7	-1 26.5	-0.5925	0.52[illegible]	0.2[illegible]	+12	7[illegible]
λ Leonis	4.7	+1.66	6.[illegible]	+10 30.0	10 20.1	+6 49.1	0.717[illegible]	0.5212	0.2445	+5	[illegible]
41 Leonis	6.5	1.69	7.5	7 1.5	27 56.[illegible]	-9 49.[illegible]	+1.0235	[illegible]	0.2504	+50	+15
48 Leonis	5.5	1.71	8.5	7 28.9	23 31.5	4 5.5	[illegible]	[illegible]	0.2543	5	[illegible]
[illegible] Sextantis	6.2	1.75	9.6	5 17.0	6 3 42.6	+0 4.1	+0.2[illegible]	0.51[illegible]	0.25[illegible]	+59	[illegible]
ρ Leonis	5.3	1.82	10.6	4 10.0	22 29.0	+8 27.8	0.7772	0.5190	0.2606	+2	75
[illegible] Leonis	6.2	+1.82	-11.3	+2 [illegible]	15 41.8	+11 34.7	+0.1[illegible]	0.5102	0.2617	+40	1[illegible]
75 Leonis	5.7	1.89	11.[illegible]	2 34.4	20 52.4	-7 24.3	1.1114	0.51[illegible]	0.2[illegible]	1[illegible]	[illegible]
76 Leonis	6.3	1.89	11.7	+2 12.[illegible]	21 41.6	-6 56.5	[illegible]	[illegible]	[illegible]	-21	[illegible]
σ Leonis	4.4	1.96	13.3	0 15.5	8 6 41.0	+2 6.2	[illegible]	[illegible]	0.2[illegible]	-8	[illegible]
[illegible] Virginis	5.7	2.13	17.3	8 53.3	8 10 20.9	+4 55.9	[illegible]	0.5113	0.2350	+81	6
69 Virginis	5.0	+2.53	19.9	15 26.7	9 11 5.3	+4 45.5	+1.25[illegible]	0.54[illegible]	0.2117	+75	+58
[illegible] Virginis	6.0	2.63	19.6	14 50.1	13 50.0	+7 8.5	[illegible]	0.5505	0.21[illegible]	+43	[illegible]
83 Virginis	6.0	2.72	20.1	15 4[illegible]	18 56.9	11 55.2	-0.2132	0.554[illegible]	0.2258	+25	55
[illegible] Virginis	6.5	2.72	13.3	15 1[illegible]	19 5.9	-11 27.2	0.73[illegible]	[illegible]	0.22[illegible]	2	[illegible]
[illegible] Virginis	5.8	2.73	20.6	17 21.[illegible]	19 52.6	-10 42.2	+1.20[illegible]	[illegible]	0.2219	+73	+31
[illegible] Virginis	5.4	+2.[illegible]	20.6	17 57.6	20 56.9	-9 40.3	+1.24[illegible]	0.5[illegible]	0.2203	+72	+1[illegible]
B.A.C. 4722	5.8	2.95	13.9	17 43.5	8 7 51.2	+0 50.4	0.9[illegible]	[illegible]	0.2025	19	[illegible]
42 Librae	5.[illegible]	3.65	27.8	23 2[illegible]	9 17 42.5	+9 22.8	0.[illegible]	0.5[illegible]	0.124[illegible]	18	[illegible]
[illegible] Scorpii	5.3	3.75	27.7	25 [illegible]	22 44.7	10 44.0	+0.[illegible]	0.5[illegible]	0.1133	+63	5
[illegible] Scorpii	5.2	3.79	27.4	25 1.5	22 44.8	-9 47.3	+0.1[illegible]	0.[illegible]	0.1105	+31	15
B.A.C. 5253	5.8	+3.75	-27.2	24 11.[illegible]	22 52.1	-9 40.2	0.666[illegible]	[illegible]	0.1102	11	[illegible]
B.A.C. 5254	5.5	3.74	27.0	23 4[illegible]	22 51.2	-9 30.2	-1.2218	[illegible]	0.11[illegible]	51	[illegible]
3 Scorpii	6.7	3.77	27.2	24 [illegible]	23 5[illegible]	-9 24.4	+0.019[illegible]	[illegible]	0.1[illegible]	+24	42
4 Scorpii	6.3	3.79	27.3	25 5[illegible]	23 26.5	-9 7.3	+1.00[illegible]	0.[illegible]	0.1[illegible]	+64	+1[illegible]
[illegible] Scorpii	3.4	3.81	27.2	25 4[illegible]	10 0 42.5	7 54.5	+0.[illegible]	[illegible]	0.1[illegible]	+64	1
B.A.C. 5314	5.[illegible]	+3.84	-26.8	25 3[illegible]	2 24.0	-6 17.2	+0.[illegible]	0.6001	0.0[illegible]	+33	25
B.A.C. 5347	6.3	3.88	26.5	26 [illegible]	4 20.5	-4 55.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Scorpii	5.4	3.[illegible]	25.4	25 21	9 3.[illegible]	+0 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Scorpii	2.2	4.[illegible]	25.[illegible]	26 12.4	12 4.4	+2 58.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22 Scorpii	5.5	3.99	24.[illegible]	24 51.[illegible]	12 23.4	+3 26.9	-1.223[illegible]	0.6[illegible]	0.0[illegible]	55	[illegible]
[illegible] Scorpii	7.[illegible]	+4.11	-23.3	23 2[illegible]	18 2[illegible]	+9 7.8	-1.1[illegible]	[illegible]	0.0[illegible]	4[illegible]	[illegible]
[illegible]	6.[illegible]	4.2[illegible]	22.9	25 9.1	11 1 1.1	8 17.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B.A.C. [illegible]	7.5	4.29	22.0	26 [illegible]	4 2[illegible]	-5 20.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
A [illegible]	4.[illegible]	4.36	22.3	26 2[illegible]	4 5[illegible]	-4 55.2	[illegible]	0.6101	[illegible]	4	[illegible]
B.A.C. [illegible]	6.5	4.36	22.3	26 24.1	5 1[illegible]	4 36.9	-0.4511	0.6101	0.01[illegible]	7	71
18 [illegible]	6.7	+4.39	-20.6	26 32.1	5 42.31	-4 8.6	-0.3215	0.6101	+0.0132	2	-6[illegible]

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY.

The Star's					At Conjunction in R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N.	S.
		s	"	° '	d	h m	h m				°	°
43 Ophiuchi	5.8	+4.36	−10.3	−28 2.8	11	7 45.2	− 2 10.9	+1.1794	0.6103	−0.0064	+62	+37
3 Sagittarii	4-6	4.44	7.5	27 47.6		16 33.9	+ 6 15.0	+1.0005	0.6097	+0.0227	+62	+20
B. A. C. 6194	5.1	4.53	4.3	27 4.8	12	3 45.0	− 7 2.6	+0.7480	0.6067	0.0589	+63	+ 1
λ Sagittarii	2.9	4.50	3.2	25 28.8		7 27.0	− 3 30.0	−0.6105	0.6051	0.0706	−12	−90
B. A. C. 6369	6.2	4.52	− 1.0	25 6.8		13 44.4	+ 2 31.6	−0.4717	0.6018	0.0899	− 3	−74
σ Sagittarii	2.3	+4.58	0.0	−26 25.5		17 38.9	+ 6 16.3	+1.2144	0.5994	+0.1015	+64	+39
ψ Sagittarii	5.4	4.56	+ 2.3	25 26.0	13	1 24.3	−10 17.4	+1.0968	0.5939	0.1235	+65	+25
χ^1 Sagittarii	5.4	4.54	3.4	24 42.4		5 11.4	− 6 39.4	+0.8595	0.5909	0.1334	+65	+ 7
χ^2 Sagittarii	6.3	4.54	3.4	24 36.8		5 13.9	− 6 37.0	+0.7580	0.5909	0.1337	+65	0
χ^3 Sagittarii	5.6	4.53	3.4	24 9.8		5 17.3	− 6 33.8	+0.3218	0.5908	0.1339	+43	−25
53 Sagittarii	6.7	+4.50	+ 5.1	−23 39.6		10 55.3	− 1 9.2	+0.6127	0.5862	+0.1483	+62	− 9
B. A. C. 6727	6.2	4.50	5.2	23 39.8		11 2.2	− 1 2.6	+0.6323	0.5861	0.1486	+63	− 8
σ Capricorni	5.6	4.34	9.2	19 26.2	14	3 3.0	− 9 38.7	−0.9610	0.5714	0.1845	−21	−90
π Capricorni	5.1	4.31	9.8	18 32.8		6 23.0	− 6 26.1	−1.2405	0.5682	0.1910	−43	−90
o Capricorni	6.2	4.32	10.1	18 55.3		7 27.9	− 5 23.6	−0.6528	0.5672	0.1930	− 1	−89
υ Capricorni	5.7	+4.26	+11.3	−18 29.9		21 47.8	− 1 13.2	−0.2309	0.5630	+0.2008	+22	−56
19 Capricorni	6.1	4.22	12.7	18 18.6		18 11.7	+ 4 57.0	+0.8985	0.5570	0.2114	+72	+ 7
B. A. C. 7263	5.9	4.17	12.8	16 25.5		19 29.0	+ 6 11.6	−0.7536	0.5557	0.2133	− 4	−90
21 Capricorni	6.4	4.19	13.2	17 55.7		20 52.3	+ 7 31.9	+1.0807	0.5544	0.2154	+72	+20
θ Capricorni	4.1	4.18	13.6	17 38.3		23 7.6	+ 9 42.5	+1.2746	0.5523	0.2186	+72	+38
29 Capricorni	5.7	+4.10	+14.3	−15 35.7	15	3 33.4	−10 0.8	+0.1636	0.5482	+0.2245	+45	−34
λ Capricorni	5.7	3.91	16.3	11 50.2		17 50.2	+ 3 47.3	−0.3881	0.5359	0.2400	+19	−65
50 Capricorni	6.9	3.91	16.3	12 9.9		17 54.7	+ 3 51.7	−0.0299	0.5359	0.2402	+37	−44
36 Aquarii	6.3	3.76	17.3	8 41.2	16	4 52.2	− 9 31.8	−0.9658	0.5274	0.2484	−12	−90
θ Aquarii	4.4	3.74	17.7	8 17.5		.8 29.3	− 6 1.5	−0.4777	0.5248	0.2505	+16	−72
B. A. C. 7774	6.4	+3.75	+18.0	− 9 32.9		18 30.4	− 6 0.4	+0.8395	0.5248	+0.2505	+80	+ 2
ρ Aquarii	5.6	3.72	18.0	8 20.0		10 9.4	− 4 24.5	−0.0155	0.5236	0.2513	+40	−43
B. A. C. 7951	6.7	3.53	18.6	− 4 45.5	17	0 4.4	+ 9 5.0	0.2320	0.5152	0.2563	+30	−56
κ Piscium	4.7	3.32	19.1	+ 0 41.8		20 21.9	+ 4 46.6	−0.8070	0.5064	0.2567	0	−71
9 Piscium	6.6	3.32	19.2	0 33.7		20 32.0	+ 4 56.5	−0.6168	0.5063	0.2566	+11	−82
15 Piscium	6.6	+3.28	+19.3	+ 0 45.0	18	0 52.9	+ 9 9.9	+0.2965	0.5050	+0.2558	+59	−27
16 Piscium	5.8	3.27	19.2	1 32.2		1 22.2	+ 9 38.4	−0.4194	0.5049	0.2557	+21	67
λ Piscium	4.5	3.24	19.3	1 13.1		4 22.2	−11 26.8	+0.6865	0.5041	0.2549	+89	− 7
19 Piscium	4.9	3.21	19.0	2 55.2		6 40.5	− 9 12.4	−0.5512	0.5035	0.2542	+14	−76
22 Piscium	5.0	3.20	19.4	2 21.8		9 38.3	− 6 19.7	+0.7991	0.5029	0.2531	+90	− 1
d Piscium	5.3	+3.04	+18.5	+ 7 37.4	19	0 56.6	+ 8 32.4	−1.0528	0.5013	+0.2457	−15	−82
45 Piscium	6.9	3.02	18.7	7 7.6		3 40.4	+11 11.6	+0.1527	0.5012	0.2440	+51	−33
75 Piscium	6.0	2.84	17.3	12 24.5	20	1 27.4	+ 8 21.4	−0.4618	0.5033	0.2267	+19	−65
η Piscium	3.7	2.74	16.4	14 49.2		14 34.2	− 2 54.5	−0.2200	0.5065	0.2131	+31	−49
101 Piscium	6.3	2.72	16.5	14 8.4		16 49.2	− 0 43.4	+1.0039	0.5071	0.2105	+90	+18
103 Piscium	6.8	+2.71	+15.8	+16 6.4		18 37.0	+ 1 1.3	−0.7833	0.5077	+0.2084	0	−66
105 Piscium	6.3	2.71	15.9	15 53.3		18 50.1	+ 1 14.0	−0.4964	0.5078	0.2081	+16	−64
3 Arietis	6.0	2.69	15.5	16 54.1		22 24.8	+ 4 42.4	−0.8748	0.5090	0.2038	− 6	−73
4 Arietis	5.7	2.68	15.6	16 26.8		23 14.6	+ 5 30.7	−0.2067	0.5093	0.2028	+32	−47
ι Arietis	5.7	2.65	15.2	17 19.1	21	3 57.8	+10 5.7	−0.2243	0.5110	0.1967	+31	−47
15 Arietis	5.7	+2.60	+14.5	+19 1.1		10 43.7	− 7 20.5	−0.8000	0.5137	+0.1875	− 1	−71
B. A. C. 686	7.2	2.59	14.4	19 8.2		12 22.5	− 5 44.7	−0.6231	0.5146	0.1851	+ 9	−68
θ Arietis	5.7	2.57	14.3	19 25.7		14 31.9	− 3 39.2	−0.5506	0.5153	0.1820	+13	−64
23 Arietis	7.5	2.57	14.3	19 13.2		15 3.0	− 3 9.0	−0.2268	0.5155	0.1812	+31	−45
26 Arietis	6.0	2.53	14.1	19 24.1		20 49.0	+ 2 26.4	+0.5931	0.5181	0.1725	+83	− 1
ν Arietis	5.7	+2.51	+13.0	+21 31.1	22	0 52.0	+ 6 21.9	−1.0626	0.5200	+0.1661	20	−68
ε Arietis	4.6	2.44	12.9	20 55.9		10 54.5	− 7 54.2	+1.1712	0.5248	0.1492	+90	+40
64 Arietis	5.7	2.38	11.1	24 21.7		22 57.1	+ 3 45.5	−0.9615	0.5308	0.1270	−14	−66
7 Tauri	6.0	2.34	10.9	24 7.3	23	3 46.1	+ 8 25.2	−0.1059	0.5332	0.1176	+37	−31
11 Tauri	6.7	2.33	10.4	24 59.9		6 44.2	+11 17.5	0.7371	0.5347	0.1117	+ 1	−64
g Pleiadum	6.3	+2.31	+10.6	+23 58.1		8 39.0	−10 51.5	+0.6141	0.5356	+0.1077	+87	+ 7

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

JULY.

The Star's					At Conjunction in R.A.					Limiting Parallels	
Name.	Mag.	Red'ns from 1897. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	″	° ′	d h m	h m				°	°
17 Tauri	4.3	+2.31	+10.7	+23 47.5	22 8 41.1	10 49.5	+0.8126	0.5516	+0.1077	+90	+18
18 Tauri	6.3	2.32	10.4	24 31.1	8 48.4	10 42.4	+0.0215	0.5517	0.1075	+44	23
19 Tauri	5.0	2.31	10.5	24 8.8	8 50.1	10 40.7	+0.4[illegible]	0.5517	0.1074	+71	2
20 Tauri	5.0	2.31	10.5	24 2.9	9 7.6	10 23.8	+0.5762	0.5[illegible]	0.1068	+81	+5
21 Tauri	7.0	2.31	10.5	24 14.1	9 9.7	10 21.8	+0.3745	0.5515	0.1067	+66	5
22 Tauri	7.0	+2.31	+10.5	+24 12.6	9 11.7	10 17.9	+0.4[illegible]	0.5513	+0.1066	+63	4
23 Tauri	4.7	2.31	10.7	23 37.8	9 22.1	10 9.8	+1.0650	0.5510	0.1063	+90	+36
η Tauri	3.1	2.31	10.6	23 47.4	9 54.4	9 38.6	+0.9457	0.5502	0.1052	+90	+27
27 Tauri	4.0	2.30	10.5	23 44.5	10 41.6	8 52.8	+1.0810	0.5496	0.1035	+90	+37
28 Tauri	6.2	2.30	10.5	23 49.5	10 42.1	8 52.4	+0.9[illegible]	0.5496	0.1035	+90	+30
B. A. C. 1190	6.0	+2.30	+10.0	+25 16.2	11 12.0	8 21.5	0.5596	0.5488	+0.1025	+21	56
ρ Tauri	6.0	2.25	9.2	26 12.9	20 41.4	+0 47.0	0.7265	0.5412	0.0822	+1	64
ι Tauri	5.7	2.22	8.9	25 23.3	24 2 5.2	+5 50.9	+0.9650	0.5411	+0.0702	+86	+10
125 Tauri	6.0	2.02	5.8	25 50.4	25 12 37.0	8 50.6	+1.1180	0.5515	0.0123	+90	+48
136 Tauri	5.3	2.00	6.9	27 35.3	18 34.7	2 54.4	0.9209	0.5542	0.0271	13	62
130 Tauri	5.3	+1.98	+5.1	+25 56.5	20 40.4	0 55.1	+0.8170	0.5543	0.0122	+90	+26
ι Geminorum	5.2	1.88	3.2	25 14.0	26 16 58.1	5 18.1	+0.4256	0.5518	0.0619	+70	0
57 Geminorum	6.3	1.86	2.7	25 30.3	22 0.8	−0 20.0	0.5104	0.5511	0.0059	+25	40
59 Geminorum	6.3	1.85	2.4	26 13.0	23 33.0	+1 13.2	1.2294	0.5528	0.0075	30	64
60 Geminorum	6.3	1.85	2.4	26 3.3	23 50.7	+1 20.1	1.0820	0.5527	0.0084	24	64
ω Geminorum	5.7	+1.84	+2.4	+24 21.8	27 1 11.5	+2 38.1	+0.6150	0.5525	0.1013	+80	+8
68 Geminorum	6.0	1.82	2.0	24 18.1	5 40.1	+6 57.3	+0.2070	0.5516	0.1116	+55	14
71 Geminorum	6.3	1.81	1.8	25 5.8	6 30.6	+7 54.8	+0.7[illegible]	0.5514	0.1193	+1	65
74 Geminorum	6.3	1.79	1.6	21 8.6	10 37.9	+11 44.8	+0.7752	0.5505	0.1229	+90	+11
81 Geminorum	6.3	1.76	0.5	21 23.7	21 57.5	1 18.8	0.9477	0.5473	0.1473	+18	67
84 Geminorum	6.8	+1.75	+0.4	+22 55.9	28 0 0.2	+0 30.8	0.3762	0.5467	0.1515	+22	49
				[illegible] N	[illegible] N						
45 Leonis	6.5	1.61	−7.3	7 5.8	30 23 54.3	−2 1.0	+0.9917	0.5248	0.2591	+90	+12
48 Leonis	5.5	1.65	7.7	7 28.9	31 5 28.0	+3 37.8	−0.9115	0.5240	0.2570	7	83
55 Sextantis	6.2	1.66	8.6	5 17.1	9 42.2	+7 44.1	+0.2[illegible]	0.5217	0.2921	+57	28
δ Leonis	5.3	+1.70	9.5	+4 10.1	18 14.5	7 50.4	0.8048	0.5213	0.2610	0	70
ρ' Leonis	6.2	+1.69	10.1	+2 50.7	21 24.9	4 54.3	+0.0776	0.5211	0.2659	+47	30

AUGUST

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
75 Leonis	5.7	+1.74	−10.5	+2 34.4	1 2 31.8	+0 2.5	1.1188	0.5217	0.2691	40	87
76 Leonis	6.3	1.74	10.5	+2 12.7	3 20.5	+0 40.5	1.1788	0.5217	0.2612	24	88
σ Leonis	4.4	1.78	11.8	−0 15.5	12 14.2	+9 26.9	0.2854	0.5267	0.2657	10	90
ρ Virginis	5.7	1.78	15.5	8 53.1	2 15 45.1	−11 54.6	+0.[illegible]	0.5[illegible]	0.2564	+81	8
69 Virginis	5.0	2.03	15.2	15 36.7	3 16 34.1	−11 55.1	+1.[illegible]	0.54[illegible]	0.2327	+75	+15
79 Virginis	6.0	+2.31	15.0	−14 50.1	19 0.1	−9 34.1	+0.0792	0.5484	0.2216	+42	37
81 Virginis	6.0	2.42	15.3	15 4[illegible]	4 0 10.0	−4 34.8	0.8457	0.55[illegible]	0.2229	+24	57
85 Virginis	6.5	2.42	15.2	15 15.3	0 30.1	−4 6.7	0.7718	[illegible]	0.2217	4	90
87 Virginis	5.7	2.44	15.9	17 21.1	1 26.4	−3 21.1	+1.1834	0.55[illegible]	0.22[illegible]	+71	+28
89 Virginis	5.4	2.45	15.9	17 17.6	2 31.4	−2 18.4	+1.2270	0.5515	0.2192	+72	+33
B. A. C. 4722	5.8	+2.64	18.6	17 41.[illegible]	13 34.4	+8 21.0	[illegible]	0.5616	0.2026	21	90
42 Librae	5.7	3.17	17.2	23 2[illegible]	6 0 7.5	6 24.7	0.[illegible]	0.5674	0.12[illegible]	19	90
λ Scorpii	5.1	3.48	17.4	25 3[illegible]	4 15.9	−2 38.2	+0.[illegible]	0.[illegible]	0.11[illegible]	+62	6
A' Scorpii	5.2	3.42	17.0	25 1.5	5 17.6	1 38.3	+0.1215	0.55[illegible]	0.1[illegible]	+96	56
B. A. C. 5253	5.8	3.47	16.8	24 11.8	5 25.0	1 19.8	0.[illegible]	[illegible]	[illegible]	11	90
B. A. C. 5254	4.8	+3.47	16.6	23 40.1	5 38.3	−1 18.6	1.2[illegible]	0.5[illegible]	0.1[illegible]	46	90
3 Scorpii	6.0	3.53	17.0	24 4[illegible]	5 42.1	−1 3.3	0.[illegible]	0.5[illegible]	0.1[illegible]	+21	43
4 Scorpii	6.3	3.52	17.2	25 50	6 0.7	−0 45.6	+0.[illegible]	0.5[illegible]	0.10[illegible]	+64	+17
ψ Scorpii	5.4	3.54	17.0	25 42.3	7 18.4	+0 36.0	+0.7114	0.5[illegible]	0.1012	+64	2
B. A. C. 5314	5.7	3.60	16.7	25 34.9	9 8.7	+2 9.1	+0.[illegible]	0.[illegible]	0.0982	+19	36
B. A. C. 5347	6.3	+3.63	16.3	26 5.2	10 52.0	+3 54.0	+0.5483	0.9325	0.0910	+57	9

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° '	d h m	h m				°	°
σ Scorpii	3.4	+3.71	−15.5	−25 21.0	6 15 52.5	+ 8 42.2	−0.5417	0.5949	−0.0784	− 7	−80
α Scorpii	1.2	3.78	15.2	26 12.5	18 59.1	+11 41.1	+0.0945	0.5963	0.0691	+25	−37
22 Scorpii	5.5	3.77	14.8	24 53.6	19 18.6	+11 59.8	−1.2540	0.5964	0.0680	−59	−90
25 Scorpii	7.0	3.91	13.3	25 20.7	7 1 35.5	− 5 59.8	−1.1650	0.5984	0.0489	−50	−90
31 Ophiuchi	6.7	4.03	11.9	25 30.1	8 18.0	+ 0 26.9	−1.2662	0.6001	0.0280	−63	−90
B. A. C. 5800	7.5	+4.12	−11.5	−26 51.9	11 50.3	+ 3 50.3	+0.0294	0.6006	−0.0169	+17	−41
A Ophiuchi	4.9	4.10	11.9	26 27.3	12 17.2	+ 4 16.1	−0.3916	0.6006	0.0158	− 5	−68
B. A. C. 5813	6.8	4.10	11.8	26 24.1	12 36.8	+ 4 34.9	−0.4498	0.6006	0.0144	− 8	−73
38 Ophiuchi	6.7	4.13	11.0	26 31.1	13 7.4	+ 5 4.2	−0.3384	0.6007	0.0128	− 2	−64
43 Ophiuchi	5.8	4.21	11.0	28 2.8	15 13.9	+ 7 5.4	+1.1825	0.6008	−0.0063	+62	+38
3 Sagittarii	4–6	+4.34	− 8.2	−27 47.6	8 0 17.9	− 8 13.3	+1.0027	0.6005	+0.0225	+62	+19
B. A. C. 6194	5.1	4.49	5.1	27 4.8	11 47.7	+ 2 47.9	+0.7483	0.5979	0.0582	+63	+ 1
λ Sagittarii	2.9	4.49	3.7	25 28.8	15 35.8	+ 6 26.7	−0.6266	0.5966	0.0697	−13	−90
B. A. C. 6369	6.2	4.56	1.6	25 6.8	22 3.0	−11 22.0	−0.4850	0.5936	0.0909	− 3	−75
σ Sagittarii	2.3	4.64	− 0.7	26 25.5	9 2 3.4	− 7 31.4	+1.2212	0.5917	0.1003	+64	+41
ψ Sagittarii	5.4	+4.67	+ 1.8	−26 26.0	9 59.9	+ 0 6.1	+1.1024	0.5882	+0.1221	+65	+26
χ^1 Sagittarii	5.4	4.67	3.0	24 42.5	13 52.0	+ 3 49.1	+0.8588	0.5845	0.1323	+65	+ 7
χ^2 Sagittarii	6.3	4.67	3.0	24 36.8	13 54.5	+ 3 51.5	+0.7689	0.5845	0.1324	+65	+ 1
χ^3 Sagittarii	5.6	4.65	3.1	24 9.8	13 58.0	+ 3 54.8	+0.3192	0.5844	0.1325	+43	−25
53 Sagittarii	6.7	4.66	5.0	23 39.6	19 43.0	+ 9 26.4	+0.6129	0.5802	0.1469	+62	− 9
B. A. C. 6727	6.2	+4.67	+ 5.0	−23 39.8	19 50.1	+ 9 33.3	+0.6328	0.5801	+0.1472	+63	− 8
σ Capricorni	5.6	4.59	9.8	19 26.2	10 12 7.7	+ 1 13.9	−0.9733	0.5673	0.1832	−22	−90
π Capricorni	5.1	4.57	10.8	18 32.8	15 30.6	+ 4 29.4	−1.2542	0.5646	0.1898	−45	−90
ο Capricorni	6.2	4.59	10.9	18 55.3	16 36.4	+ 5 32.8	−0.6622	0.5636	0.1918	− 2	−90
υ Capricorni	5.7	4.57	12.2	18 29.9	20 59.6	+ 9 46.5	−0.2371	0.5600	0.1998	+21	−56
19 Capricorni	6.1	+4.56	+13.7	−18 18.6	11 3 27.6	− 7 59.1	+0.8980	0.5547	+0.2105	+72	+ 7
B. A. C. 7263	5.9	4.52	14.1	16 25.5	4 45.4	− 6 44.1	−0.7641	0.5536	0.2125	− 5	−90
21 Capricorni	6.4	4.55	14.4	17 55.7	6 9.6	− 5 22.8	+1.0812	0.5525	0.2146	+72	+20
θ Capricorni	4.1	4.54	14.9	17 38.3	8 26.1	− 3 11.0	+1.2759	0.5506	0.2179	+72	+38
29 Capricorni	5.7	4.48	16.0	15 35.7	12 53.7	+ 1 7.5	+0.1589	0.5471	0.2240	+45	−34
18 Aquarii	5.7	+4.42	+16.8	−13 19.0	16 47.0	+ 4 52.9	−1.3125	0.5439	+0.2287	−46	−90
λ Capricorni	5.7	4.33	18.7	11 50.2	12 3 13.8	− 9 1.1	−0.3954	0.5364	0.2401	+19	−66
50 Capricorni	6.9	4.33	18.7	12 9.9	3 18.3	− 8 56.7	−0.0364	0.5362	0.2402	+37	−45
36 Aquarii	6.3	4.23	20.4	8 41.2	14 15.5	+ 1 39.4	−0.9746	0.5288	0.2489	−12	−90
θ Aquarii	4.4	4.22	20.8	8 17.4	17 52.1	+ 5 9.2	−0.4863	0.5267	0.2513	+16	−72
B. A. C. 7774	6.4	+4.23	+20.9	− 9 32.9	17 53.1	+ 5 10.2	+0.8312	0.5267	+0.2513	+80	+ 1
ρ Aquarii	5.6	4.21	21.1	8 19.9	19 31.7	+ 6 45.7	−0.0242	0.5255	0.2521	+40	−44
B. A. C. 7951	6.7	4.09	22.3	− 4 45.4	13 9 22.3	− 3 49.1	−0.2423	0.5182	0.2576	+29	−56
κ Piscium	4.7	3.95	23.4	+ 0 41.9	14 5 28.3	− 8 19.0	−0.8166	0.5104	0.2585	0	−89
9 Piscium	6.6	3.95	23.6	0 33.8	5 38.3	− 8 9.3	−0.6343	0.5104	0.2585	+10	−84
15 Piscium	6.6	+3.91	+23.9	+ 0 45.0	9 56.1	− 3 59.0	+0.2791	0.5092	+0.2577	+58	−28
16 Piscium	5.8	3.90	23.9	1 32.2	10 25.1	− 3 30.8	−0.4344	0.5091	0.2576	+20	−68
λ Piscium	4.5	3.88	23.9	1 13.2	13 23.0	− 0 38.1	+0.6670	0.5084	0.2568	+87	− 8
19 Piscium	4.9	3.87	24.0	2 55.3	15 39.3	+ 1 34.3	−0.5074	0.5080	0.2561	+13	−78
22 Piscium	5.0	3.86	24.1	2 21.9	18 35.1	+ 4 25.0	+0.7775	0.5074	0.2551	+90	− 2
d Piscium	5.3	+3.75	+23.7	+ 7 37.5	15 9 41.2	− 4 55.0	−1.0702	0.5059	+0.2476	−16	−82
45 Piscium	6.9	3.74	23.8	7 7.7	12 22.8	− 2 18.1	+0.1291	0.5058	0.2459	+50	−34
75 Piscium	6.0	3.62	22.5	12 24.6	16 9 52.5	− 5 25.6	−0.4881	0.5074	0.2282	+17	−67
η Piscium	3.7	3.55	21.6	14 49.3	22 50.0	+ 7 9.2	−0.2503	0.5100	0.2143	+29	−51
101 Piscium	6.3	3.55	21.6	14 8.4	17 1 3.5	+ 9 18.7	+0.9680	0.5106	0.2117	+90	+15
103 Piscium	6.8	+3.54	+20.9	+16 6.5	2 50.1	+11 2.2	−0.8124	0.5111	+0.2095	− 1	−74
105 Piscium	6.3	3.54	21.0	15 53.4	3 3.1	+11 14.8	−0.5266	0.5112	0.2093	+15	−66
3 Arietis	6.0	3.53	20.5	16 54.2	6 35.6	9 19.0	−0.9043	0.5122	0.2048	− 7	−73
4 Arietis	5.7	3.53	20.7	16 26.9	7 24.0	− 8 31.2	−0.2391	0.5126	0.2037	+30	−48
ι Arietis	5.7	3.50	20.2	17 19.2	12 5.5	− 3 58.9	0.2574	0.5139	0.1975	+29	−49
15 Arietis	5.7	+3.47	+19.3	+19 1.2	18 47.9	+ 2 31.4	−0.8337	0.5162	+0.1881	− 3	−71

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

The Star's					At Conjunction in R. A.					Limiting Parallels	
Name.	Mag.	Red'ns from 1897.0 Δα	Red'ns from 1897.0 Δδ	Apparent Decl.	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
		s	°	° ′	d h m	h m				°	°
B. A. C. 686	7.2	+3.46	+19.2	+19 8.2	17 20 25.8	+4 6.4	0.6570	0.5167	+0.1807	+7	70
θ Arietis	5.7	3.45	18.9	19 25.8	22 34.6	+6 11.2	0.5545	0.5175	0.1525	+11	66
23 Arietis	7.5	3.44	18.9	19 13.3	23 5.2	+6 40.9	[illegible]	0.5177	0.1515	[illegible]	47
26 Arietis	6.0	3.42	18.6	19 24.2	18 4 48.9	−11 45.9	+0.5545	0.5180	0.1729	[illegible]	4
ν Arietis	5.7	3.42	17.5	21 31.2	8 50.6	−7 51.6	1.0975	0.5215	0.1664	21	68
ε Arietis	4.6	+3.34	+16.9	+20 56.0	18 50.6	+1 40.7	+1.1900	0.5257	+0.1402	+90	+56
64 Arietis	5.7	3.30	14.6	24 21.8	19 6 51.6	10 32.3	1.0007	0.5318	0.1280	17	66
7 Tauri	6.0	3.26	14.2	24 7.4	11 40.6	5 52.6	0.1445	0.5329	0.1174	+35	33
11 Tauri	6.7	3.26	13.5	25 0.0	14 35.7	−3 0.3	0.7771	0.5341	0.1114	2	65
g Pleiadum	6.3	3.23	13.7	23 58.1	16 33.5	−1 9.3	+0.5725	0.5349	0.1075	+83	+5
17 Tauri	4.3	+3.23	+13.8	+23 47.6	16 35.7	−1 7.2	+0.7711	0.5343	+0.1074	+90	+16
18 Tauri	6.3	3.24	13.5	24 31.2	16 41.0	−1 0.1	0.0195	0.5349	0.1072	+42	26
19 Tauri	5.0	3.24	13.6	24 8.9	16 44.6	−0 58.5	+0.3017	0.5350	0.1071	+68	5
20 Tauri	5.0	3.23	13.6	24 3.0	17 2.2	−0 41.5	+0.5347	0.5351	0.1069	+73	+3
21 Tauri	7.0	3.21	13.6	24 14.2	17 4.3	−0 39.5	+0.3316	0.5351	0.1069	+65	7
22 Tauri	7.0	+3.23	+13.6	+24 12.6	17 8.3	−0 35.6	+0.3669	0.5351	+0.1069	+66	6
23 Tauri	4.7	3.23	13.8	23 57.9	17 16.7	−0 27.5	+1.0232	0.5352	0.1068	+90	+32
η Tauri	3.1	3.22	13.6	23 47.4	17 40.0	+0 5.7	+0.9011	0.5354	0.1049	+90	+24
26 Tauri	7.0	3.22	13.4	23 31.0	18 30.5	+0 45.9	+1.2775	0.5357	0.1037	+90	+58
27 Tauri	4.0	3.22	13.5	23 44.5	18 36.3	+0 49.6	+1.0391	0.5357	0.1033	+90	+34
28 Tauri	6.2	+3.22	+13.5	+23 40.5	18 50.9	+0 50.1	+0.9481	0.5357	+0.1033	+90	+48
B. A. C. 1192	6.0	3.23	12.9	25 16.3	19 6.7	+1 18.9	0.6004	0.5353	0.1022	+9	59
f Tauri	6.3	3.17	11.5	26 12.9	20 4 17.5	+10 30.9	0.7666	0.5387	[illegible]	−2	64
τ Tauri	5.7	3.11	11.2	25 21.4	10 2.3	8 15.2	+0.5966	0.5417	[illegible]	+83	+8
125 Tauri	6.3	2.86	6.4	25 50.5	21 20 45.3	+1 16.4	+1.0749	0.5506	0.0121	+90	+45
126 Tauri	5.5	+2.81	+5.0	+27 35.4	22 2 45.3	+7 4.0	0.9535	0.5512	0.0267	−16	62
129 Tauri	5.3	2.79	5.2	25 56.5	4 51.8	+9 5.6	[illegible]	0.5514	0.0119	+90	+25
ι Geminorum	5.2	2.59	2.6	25 14.0	23 1 26.5	+4 47.9	[illegible]	0.5515	0.0813	+68	1
17 Geminorum	6.3	2.55	1.8	25 30.3	6 2.6	+9 41.6	[illegible]	[illegible]	0.0328	+24	41
39 Geminorum	6.3	2.54	1.4	26 13.0	7 51.2	+11 11.1	[illegible]	0.5506	[illegible]	48	64
40 Geminorum	6.3	+2.54	+1.4	+26 3.2	8 11.0	+11 28.2	1.1120	0.5505	0.0975	28	64
ω Geminorum	5.7	2.51	1.6	24 21.7	9 12.2	11 11.3	+0.5570	0.5504	0.1005	+89	+7
48 Geminorum	6.3	2.47	1.0	24 15.1	14 1.7	6 51.2	[illegible]	0.5497	0.1109	+51	15
52 Geminorum	6.3	2.47	0.6	25 3.8	15 1.3	−5 55.6	0.7574	0.5475	0.1132	1	65
58 Geminorum	6.3	2.41	+0.6	23 5.6	19 0.2	2 5.0	[illegible]	0.5455	0.1221	+90	+19
83 Geminorum	6.3	+2.32	0.9	+23 21.7	24 6 2.8	+8 52.3	[illegible]	0.5464	0.1466	13	67
84 Geminorum	6.8	2.27	1.0	22 35.9	8 21.4	+10 50.8	0.6213	0.5460	0.1500	+21	50
[illegible] Cancri	6.3	2.25	1.6	22 21.5	13 20.5	8 22.2	[illegible]	0.5453	[illegible]	10	68
[illegible] Cancri	5.7	2.24	1.7	21 52.[illegible]	15 8.6	6 17.7	0.6916	0.5442	0.1645	+4	68
B. A. C. 2758	6.0	2.18	2.2	21 4.1	20 5[illegible]	1 1.2	0.8133	0.5426	[illegible]	3	69
θ Cancri	5.7	+2.12	2.5	+18 26.5	25 2 12.2	+4 1.8	+1.0155	0.5412	−0.1853	+90	+25
55 Cancri	6.3	2.12	2.2	13 [illegible]	3 54.6	+5 42.7	[illegible]	[illegible]	[illegible]	6	[illegible]
B. A. C. 2890	7.2	2.11	2.2	19 17.5	5 1.4	+6 40.2	[illegible]	[illegible]	[illegible]	+2	+68
B. A. C. 2914	7.2	2.11	3.1	19 54.1	6 1.0	+7 45.0	1.2351	0.5401	[illegible]	15	70
[illegible] Cancri	7.2	2.10	3.2	19 54.5	6 17.3	+8 1.3	[illegible]	[illegible]	[illegible]	41	[illegible]
δ Cancri	4.0	+2.06	−3.3	+18 31.9	8 [illegible]	+9 [illegible]	[illegible]	0.5395	[illegible]	+30	46
[illegible] Cancri	6.[illegible]	2.02	3.5	15 [illegible]	14 [illegible]	8 [illegible]	+1.2588	[illegible]	[illegible]	+90	+42
60 Cancri	[illegible]	2.01	4.0	17 [illegible]	16 [illegible]	6 [illegible]	0.7150	0.5374	[illegible]	+1	72
τ Cancri	6.3	[illegible]	4.2	15 24.6	21 21.6	1 24.7	[illegible]	[illegible]	[illegible]	+65	17
[illegible] Cancri	6.[illegible]	[illegible]	4.5	15 22.1	22 41.6	0 5.1	+0.1271	0.5358	0.2195	+50	−90
					Sept.						
[illegible] Leonis	6.3	+1.72	10.0	+8 12.[illegible]	28 10 50.0	+3 4[illegible]	1.1217	[illegible]	[illegible]	20	−88
[illegible] Leonis	4.4	1.74	10.2	0 15.5	19 11.7	5 4[illegible]	0.2244	[illegible]	[illegible]	6	90
[illegible] Virginis	[illegible]	[illegible]	11.8	8 [illegible]	30 22 4.9	5 4[illegible]	[illegible]	0.5422	[illegible]	+80	−4
83 Virginis	6	[illegible]	[illegible]	15 4	31 5 52.1	+2 54.7	0.1557	[illegible]	[illegible]	+25	52
85 Virginis	6.5	+2.12	−16.3	15 15.3	6 20.6	+3 22.1	−0.6783	0.5575	0.2234	+2	−90

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

AUGUST.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Red'ns from 1897.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N	S.
		s	"	° '	d h m	h m				°	°
87 Virginis	5.8	+2.11	-16.8	-17 20.9	31 7 7.2	+ 4 7.1	+1.2650	0.5579	-0.2221	+73	+37
B. A. C. 4722	5.8	+2.30	-16.7	-17 43.6	19 5.3	- 8 20.8	-0.8945	0.5656	-0.2016	-14	-90

SEPTEMBER.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N	S.
42 Libræ	5.7	+2.96	-16.2	-23 29.3	2 5 27.2	+ 0 42.3	-0.7322	0.5864	-0.1227	-13	-90
b Scorpii	5.3	3.05	16.4	25 26.6	9 36.1	+ 4 41.3	+0.7577	0.5882	0.1114	+65	+ 1
A¹ Scorpii	5.2	3.07	16.1	25 1.4	10 37.9	+ 5 40.6	+0.2213	0.5887	0.1085	+35	-30
B. A. C. 5253	5.8	3.08	16.1	24 13.8	10 45.4	+ 5 47.9	-0.5945	0.5858	0.1082	- 8	-86
B. A. C. 5254	5.8	+3.06	-15.6	-23 40.5	10 46.6	+ 5 49.0	-1.1577	0.5888	-0.1082	-44	-90
3 Scorpii	6.7	3.08	16.0	24 56.6	11 2.4	+ 6 4.1	+0.0947	0.5889	0.1074	+28	37
4 Scorpii	6.3	3.09	16.3	25 58.0	11 21.1	+ 6 22.1	+1.0967	0.5890	0.1067	+64	+26
π Scorpii	3.4	3.12	16.1	25 49.3	12 39.2	+ 7 37.1	+0.8139	0.5896	0.1029	+64	+ 5
B. A. C. 5314	5.7	3.15	15.8	25 34.9	14 23.9	+ 9 17.6	+0.3935	0.5902	0.0980	+44	-20
B. A. C. 5347	6.0	+3.20	-15.6	-26 3.2	16 13.7	+11 3.0	+0.6990	0.5910	-0.0927	+63	3
σ Scorpii	3.4	3.28	14.8	25 21.0	21 16.2	- 8 6.8	-0.4440	0.5927	0.0781	- 2	-72
α Scorpii	1.2	3.36	14.5	26 12.4	3 0 24.1	- 5 6.5	+0.1939	0.5937	0.0688	+30	-31
22 Scorpii	5.5	3.33	14.0	24 53.5	0 43.8	- 4 47.6	-1.1596	0.5937	0.0678	-48	90
25 Scorpii	7.0	3.50	13.3	20 20.7	7 4.3	+ 1 17.3	-1.0730	0.5951	0.0488	-42	90
31 Ophiuchi	6.7	+3.63	-11.8	-25 30.1	13 51.8	+ 7 48.1	-1.1758	0.5959	-0.0280	-53	90
B. A. C. 5800	7.5	3.72	11.6	26 51.9	17 26.9	+11 14.4	+0.1258	0.5960	0.0170	+22	-35
A Ophiuchi	4.9	3.71	12.0	26 27.3	17 54.2	+11 40.5	-0.2978	0.5960	0.0156	0	61
B. A. C. 5813	6.8	3.72	11.9	26 24.1	18 14.1	-12 0.4	-0.3564	0.5960	0.0146	- 3	-65
38 Ophiuchi	6.7	3.73	11.2	26 31.1	18 45.1	-11 30.7	-0.2445	0.5960	-0.0130	+ 3	-58
3 Sagittarii	4-6	+3.98	- 8.8	-27 47.6	4 6 6.6	- 0 37.2	+1.1026	0.5947	+0.0219	+62	+28
B. A. C. 6194	5.1	4.16	5.7	27 4.8	17 49.8	+10 37.4	+0.8433	0.5913	0.0571	+63	+ 7
λ Sagittarii	2.9	4.18	5.2	25 28.8	21 42.5	- 9 39.2	-0.5463	0.5896	0.0685	- 8	-81
B. A. C. 6369	6.2	4.28	- 3.0	25 6.9	5 4 18.2	- 3 19.4	-0.4053	0.5866	0.0872	+ 1	-69
ψ Sagittarii	5.4	4.43	+ 0.9	25 26.0	16 31.4	+ 8 25.1	+1.1903	0.5795	0.1199	+65	+35
χ¹ Sagittarii	5.4	+4.46	+ 2.1	-24 42.5	20 29.1	-11 46.3	+0.9420	0.5769	+0.1298	+65	+13
χ² Sagittarii	6.3	4.45	2.1	24 36.8	20 31.7	-11 43.8	+0.8513	0.5769	0.1299	+65	+ 6
χ³ Sagittarii	5.6	4.44	2.3	24 9.8	20 35.2	-11 40.5	+0.3969	0.5768	0.1301	+55	-21
53 Sagittarii	6.7	4.48	4.1	23 39.7	6 2 28.5	- 6 0.5	+0.6902	0.5729	0.1442	+66	- 4
B. A. C. 6727	6.2	4.48	4.2	23 39.8	2 35.7	- 5 53.6	+0.7100	0.5727	0.1445	+66	- 3
σ Capricorni	5.6	+4.50	+ 9.4	-19 26.2	19 16.4	+10 10.3	0.9251	0.5604	+0.1800	-19	-90
π Capricorni	5.1	4.49	10.5	18 32.8	22 43.8	-10 29.7	-1.2123	0.5578	0.1865	-40	90
ο Capricorni	6.2	4.51	10.5	18 55.3	23 51.1	- 9 24.8	-0.6152	0.5569	0.1886	+ 1	-85
υ Capricorni	5.7	4.51	11.9	18 29.9	7 4 20.2	- 5 5.2	-0.1898	0.5536	0.1965	+23	-53
19 Capricorni	6.1	4.54	13.4	18 18.6	10 56.6	+ 1 17.5	+0.9500	0.5487	0.2071	+72	+11
B. A. C. 7263	5.9	+4.50	+14.0	-16 25.5	12 16.1	+ 2 34.4	-0.7295	0.5477	+0.2092	+ 6	-90
21 Capricorni	6.4	4.54	14.1	17 55.7	13 41.9	+ 3 57.2	+1.1346	0.5466	0.2112	+72	+24
θ Capricorni	4.1	4.54	14.6	17 38.3	16 1.2	+ 6 11.7	+1.3258	0.5450	0.2146	+72	+46
29 Capricorni	5.7	4.51	16.0	15 35.7	20 34.1	+10 35.6	+0.1934	0.5417	0.2207	+46	32
18 Aquarii	5.7	4.48	17.1	13 18.9	8 0 31.8	- 9 34.6	-1.2956	0.5390	0.2257	-43	-90
λ Capricorni	5.7	+4.45	+19.5	-11 50.1	11 9.5	+ 0 42.4	-0.3819	0.5321	+0.2370	+19	-65
50 Capricorni	6.9	4.46	19.3	12 9.9	11 14.0	+ 0 46.8	-0.0204	0.5321	0.2371	+38	-44
36 Aquarii	6.3	4.41	21.7	8 41.2	22 20.7	+11 32.4	-0.9792	0.5256	0.2461	13	-90
θ Aquarii	4.4	4.41	22.2	8 17.4	9 2 0.0	- 8 55.1	0.4919	0.5237	0.2485	+15	72
B. A. C. 7774	6.4	4.43	22.1	9 32.8	2 1.0	- 8 54.1	+0.8340	0.5237	0.2485	+80	+ 2
ρ Aquarii	5.6	+4.41	+22.4	- 8 19.9	3 40.8	- 7 17.4	-0.0295	0.5229	+0.2496	+39	44
B. A. C. 7951	6.7	4.34	24.4	- 4 45.4	17 39.5	+ 6 15.9	-0.2640	0.5168	0.2555	+28	-57
κ Piscium	4.7	4.29	26.4	+ 0 42.1	10 13 51.9	+ 1 52.5	0.8722	0.5108	0.2574	- 4	89
9 Piscium	6.6	4.29	26.5	0 33.8	14 1.7	+ 2 2.0	0.6833	0.5108	0.2573	+ 8	-86
15 Piscium	6.6	4.28	26.8	0 45.1	18 20.0	+ 6 12.8	+0.2227	0.5099	0.2567	+55	31
16 Piscium	5.8	+4.26	+26.9	+ 1 32.4	18 49.1	+ 6 41.1	+0.4958	0.5098	+0.2566	+17	-72

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS

SEPTEMBER

The Star's					At Conjunction in R.A.					Limiting Parallels	
Name	Mag.	Red'n from 1897·0 Δα	Δδ	Apparent Declination	Wash'gton Mean Time	Hour Angle h	Y	x'	y'	N	S
		° '	°	° '	d h m	h m				°	°
λ Piscium	4·5	+4·26	+26·9	+ 1 15·2	10 21 47·0	+ 9 31·8	+0·6063	0·5034	+0·2460	+81	11
19 Piscium	4·9	4·25	27·1	2 55·4	11 0 3·7	+11 46·5	0·6128	0·5030	0·2554	+10	81
22 Piscium	5·0	4·25	27·1	2 21·9	2 50·1	9 23·2	+0·[illegible]	0·50[illegible]	0·2545	+90	5
d Piscium	5·3	4·21	27·5	7 37·5	18 5·5	+ 5 25·1	1·1502	0·5081	0·2474	23	82
45 Piscium	6·9	4·22	27·5	7 7·8	20 44·4	+ 7 51·3	+0·0969	0·5081	0·2458	+44	90
75 Piscium	6·0	+4·19	+26·4	+12 24·7	12 18 7·4	+ 4 37·1	0·6052	0·5104	+0·2281	+11	74
ε Piscium	3·7	4·18	25·9	14 49·3	13 6 50·8	6 53·3	0·1808	0·5134	0·2146	+22	58
101 Piscium	6·3	4·18	25·8	14 8·5	9 12·5	4 44·5	+0·8145	0·5140	0·2120	+90	0
103 Piscium	6·8	4·19	25·3	16 6·6	10 58·4	3 1·7	0·9[illegible]	0·5143	0·2[illegible]	10	74
105 Piscium	6·3	4·19	25·4	15 51·4	11 11·3	2 49·2	0·6605	0·5144	0·2096	+ 7	73
5 Arietis	6·0	+4·19	+25·0	+16 54·2	14 42·3	+ 0 35·5	1·0415	0·5155	+0·2052	17	73
4 Arietis	5·7	4·18	25·0	16 27·0	15 31·3	+ 1 23·0	0·3773	0·5159	0·2040	+22	56
ι Arietis	5·7	4·18	24·5	17 19·3	20 10·1	+ 5 55·5	0·9934	0·5171	0·1978	+22	57
15 Arietis	5·7	4·18	23·6	19 1·5	14 2 50·0	11 58·7	0·0791	0·5172	0·1883	13	71
B.A.C. 686	7·2	4·18	23·5	19 8·3	4 27·3	10 4·4	0·3085	0·5198	0·1862	2	71
θ Arietis	5·7	+4·17	+23·1	+19 25·0	6 35·0	8 0·6	0·7152	0·5205	+0·1838	+ 2	70
23 Arietis	7·5	4·17	23·2	19 13·4	7 5·7	7 50·8	0·4129	0·5206	0·1820	+20	56
26 Arietis	6·0	4·16	22·7	19 24·3	12 47·6	1 50·5	+0·9288	0·5226	0·1750	+67	11
ν Arietis	5·7	4·18	21·6	21 51·5	16 48·0	+ 1 55·5	1·2545	0·5241	0·1694	40	68
μ Arietis	6·0	4·15	21·9	19 34·7	18 54·1	+ 3 30·3	+1·1796	0·5247	0·1[illegible]	+90	+90
ε Arietis	4·6	+4·14	+20·6	+20 56·0	15 2 45·6	+11 32·5	+0·9[illegible]	0·52[illegible]	+0·1432	+90	+24
64 Arietis	5·7	4·14	18·2	24 21·8	14 45·0	0 51·1	1·1702	0·5302	0·1267	32	66
66 Arietis	6·0	4·11	18·3	22 27·2	16 45·0	+ 1 5·2	+1·1924	0·5309	0·1227	+90	+45
7 Tauri	6·0	4·12	17·5	24 7·4	19 31·7	+ 3 48·3	0·3178	0·5313	0·1171	+25	41
9 Tauri	7·0	4·10	17·6	22 52·5	20 40·7	+ 4 58·9	+1·2051	0·5341	0·1147	+90	+47
11 Tauri	6·7	+4·13	+16·7	+25 0·2	22 31·0	+ 6 40·7	0·9409	0·5342	+0·1111	14	65
ζ [illegible]	6·3	4·10	16·7	23 58·2	16 0 26·8	+ 8 11·8	+0·4004	0·5357	0·1072	+68	5
17 Tauri	4·3	4·10	16·8	23 47·6	0 29·0	+ 8 11·9	+0·9820	0·5357	0·1071	+85	+ 7
18 Tauri	6·3	4·11	16·5	24 11·2	0 56·3	+ 8 41·0	0·1321	0·5358	0·1068	+32	55
19 Tauri	5·0	4·11	16·6	24 8·9	0 58·0	+ 8 42·6	+0·2226	0·5357	0·1068	+56	13
20 Tauri	5·0	+4·10	+16·6	+24 1·0	0 55·5	+ 8 50·6	+0·1621	0·5358	+0·1069	+65	6
21 Tauri	7·0	4·10	16·5	24 14·2	0 57·6	+ 9 1·6	+0·1521	0·5359	0·1061	+52	16
22 Tauri	7·0	4·10	16·5	24 12·7	1 1·6	+ 9 5·5	+0·1354	0·5359	0·1060	+54	14
23 Tauri	4·7	4·09	16·7	23 57·9	1 10·1	+ 9 13·7	+0·8511	0·5358	0·1058	+90	+21
η Tauri	3·2	4·09	16·6	23 47·5	1 42·4	+ 9 44·0	+0·[illegible]	0·5360	0·1046	+90	+14
26 Tauri	7·0	+4·09	+16·4	+23 12·7	2 21·8	+10 25·0	+1·0751	0·536[illegible]	+0·1032	+90	+90
27 Tauri	4·0	4·09	16·5	23 44·6	2 29·7	+10 30·7	+0·[illegible]	0·536[illegible]	0·1030	+90	+22
28 Tauri	6·2	4·09	16·5	23 40·6	2 30·3	+10 32·2	+0·[illegible]	0·536[illegible]	0·1023	+90	+17
B.A.C. 1190	6·0	4·10	15·8	25 16·3	3 0·2	+11 0·2	0·7742	0·536[illegible]	0·1019	2	65
ρ Tauri	6·0	4·07	14·2	20 13·0	12 32·2	5 4·8	0·9446	0·5395	0·0815	24	64
[illegible] Tauri	5·7	+4·01	+13·5	+25 21·4	17 58·2	+ 1 28·5	+0·[illegible]	0·5411	+0·0[illegible]	+60	1
125 Tauri	6·0	3·96	6·2	25 [illegible]	18 4 5·7	+11 [illegible]	+0·[illegible]	0·5471	0·0[illegible]	+90	+34
[illegible] Tauri	5·3	3·74	5·2	27 55·4	11 1·9	6 51·7	1·1[illegible]	0·54[illegible]	0·0[illegible]	12	64
[illegible] Tauri	5·3	3·68	5·4	25 [illegible]	13 9·9	4 48·0	+0·[illegible]	0·5477	0·0[illegible]	+88	+15
[illegible] Geminorum	3·2	3·44	1·8	25 14·0	19 9 51·2	8 49·4	+0·2272	0·5470	0·0[illegible]	+86	10
[illegible] Geminorum	6·3	+3·90	+ 0·7	+23 [illegible]	14 52·8	3 52·3	0·3[illegible]	0·5460	0·0[illegible]	+14	52
[illegible] Geminorum	6·3	3·58	0·2	26 3·2	16 51·8	2 3·1	1·2854	0·5458	0·0[illegible]	55	64
[illegible] Geminorum	5·7	3·33	+ 0·5	24 21·7	18 14·2	0 41·5	+0·4[illegible]	0·5457	0·0922	+87	2
48 Geminorum	6·0	3·28	0·1	24 18·1	22 47·7	+ 3 4·6	+0·0161	0·5448	0·1[illegible]	+41	24
52 Geminorum	6·3	3·20	0·8	25 3·8	23 48·2	+ 4 52·1	0·2331	0·5447	0·11[illegible]	12	65
58 Geminorum	6·3	+3·20	0·9	+23 8·6	20 3 56·7	+ 8 11·4	+0·8921	0·5440	0·1[illegible]	+90	+10
83 Geminorum	6·3	3·16	2·8	23 21·7	15 21·1	4 12·4	1·1058	0·5427	0·1444	25	60
84 Geminorum	6·8	3·13	2·9	22 35·2	17 25·4	2 19·2	0·5472	0·5412	0·1497	+12	53
[illegible] Cancri	6·3	2·96	3·9	21 52·8	21 0 16·1	+ 4 17·7	0·8[illegible]	0·5[illegible]	0·1721	5	60
B.A.C. [illegible]	6·0	2·8[illegible]	4·3	21 4·3	6 8·6	+ 9 58·[illegible]	0·3[illegible]	0·5[illegible]	0·1752	12	60
θ Cancri	5·7	+2·75	4·6	+18 26·5	11 27·8	8 52·7	+0·2939	0·5[illegible]	0·1828	+90	+15

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

SEPTEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
35 Cancri	6.3	+2.76	− 5.3	+19 56.6	21 13 11.4	− 7 12.5	−1.0094	0.5369	−0.1858	−16	−70
B. A. C. 2899	7.2	2.73	5.2	19 37.5	14 20.9	− 6 5.3	−0.8870	0.5366	0.1878	− 7	70
δ Cancri	4.0	2.68	5.6	18 31.9	17 37.3	− 2 55.3	−0.3459	0.5360	0.1934	+24	52
σ^2 Cancri	6.0	2.58	5.6	15 58.6	23 45.6	+ 3 1.0	+1.1448	0.5348	0.2034	+90	+31
68 Cancri	7.5	2.58	6.3	17 29.0	22 1 42.5	+ 4 54.0	−0.8461	0.5344	0.2064	− 4	73
π^1 Cancri	6.3	+2.47	− 6.3	+15 24.5	6 47.7	+ 9 49.4	+0.2733	0.5335	−0.2141	+58	−21
π^2 Cancri	6.0	2.48	6.7	15 22.0	8 10.2	+11 9.4	+0.0217	0.5332	0.2161	+44	−35
18 Leonis	6.0	2.28	7.9	12 16.9	23 8.6	+ 1 38.9	−0.1285	0.5314	0.2357	+36	−45
19 Leonis	7.0	2.27	7.8	12 2.6	23 39.0	+ 2 8.3	−0.0020	0.5313	0.2362	+42	−39
21 Leonis	6.8	2.26	8.1	12 19.3	23 1 16.6	+ 3 42.7	−0.6741	0.5311	0.2381	+ 7	−77
A Leonis	4.7	+2.17	− 8.7	+10 30.0	9 32.0	+11 42.4	−0.7788	0.5310	−0.2468	+ 1	73
43 Leonis	6.5	2.09	9.0	7 3.8	16 50.9	− 5 12.7	+0.9505	0.5308	0.2534	+90	+10
48 Leonis	5.5	2.05	9.5	7 28.9	22 32.3	+ 0 17.8	−0.9415	0.5311	0.2577	− 8	−83
35[1] Sextantis	6.2	2.03	9.7	5 17.0	24 2 39.5	+ 4 17.1	+0.2574	0.5314	0.2605	+57	28
d Leonis	5.3	1.98	10.3	+ 4 10.0	10 56.7	−11 41.5	−0.7741	0.5326	0.2649	+ 2	−78
				NEW	*MOON.*						
B. A. C. 4722	5.8	+2.07	−15.0	−17 43.5	28 2 21.7	+ 0 43.3	−0.7405	0.5754	−0.2036	− 6	−90
42 Libræ	5.7	2.57	14.6	23 29.2	29 11 47.0	+ 8 49.6	−0.5435	0.5946	0.1235	− 3	−80
b Scorpii	5.3	2.65	14.7	25 26.5	15 49.9	−11 17.4	+0.9327	0.5963	0.1120	+65	+13
A^2 Scorpii	5.2	2.66	14.5	25 1.4	16 50.4	−10 19.3	+0.4026	0.5967	0.1091	+46	20
B. A. C. 5253	5.8	+2.66	−14.5	−24 13.8	16 57.6	−10 12.4	−0.4036	0.5968	−0.1088	+ 3	−68
B. A. C. 5254	5.8	2.66	14.1	23 40.5	16 58.8	−10 11.3	−0.9605	0.5968	0.1087	−29	−90
3 Scorpii	6.7	2.67	14.6	24 56.5	17 14.3	− 9 56.5	+0.2779	0.5968	0.1080	+38	27
π Scorpii	3.4	2.70	14.3	25 49.3	18 48.8	− 8 25.8	+0.9901	0.5974	0.1034	+64	+17
B. A. C. 5314	5.7	2.73	14.2	25 34.9	20 31.1	− 6 47.7	+0.5789	0.5980	0.0984	+56	−10
B. A. C. 5347	6.0	+2.77	−14.1	−26 3.2	22 18.6	− 5 4.6	+0.8797	0.5987	−0.0931	+64	+ 9
σ Scorpii	3.4	2.85	13.6	25 21.0	30 3 14.7	− 0 20.9	−0.2481	0.5998	0.0783	+ 8	−57
α Scorpii	1.2	2.91	13.2	26 12.4	6 19.0	+ 2 35.7	+0.3850	0.6003	0.0690	+42	−21
22 Scorpii	5.5	2.90	12.7	24 53.5	6 38.3	+ 2 54.2	−0.9551	0.6003	0.0680	−32	−90
25 Scorpii	7.0	3.02	11.8	25 20.6	12 52.0	+ 8 52.3	−0.8669	0.6010	0.0487	−28	−90
31 Ophiuchi	6.7	+3.14	−10.9	−25 30.1	19 32.9	− 8 43.5	−0.9696	0.6009	−0.0279	−37	−90
B. A. C. 5800	7.5	3.22	10.8	26 51.9	23 5.1	− 5 20.1	+0.3260	0.6006	0.0168	+33	−24
A Ophiuchi	4.9	3.20	11.3	26 27.2	23 32.0	− 4 54.3	−0.0943	0.6005	0.0154	+10	48
B. A. C. 5813	6.8	+3.21	−11.3	−26 24.1	23 51.6	− 4 35.6	−0.1524	0.6005	−0.0144	+ 7	−52

OCTOBER.

Name.	Mag.	Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x	y'	N.	S.
38 Ophiuchi	6.7	+3.24	−10.4	−26 31.1	1 0 22.3	− 4 6.1	−0.0412	0.6004	−0.0128	+22	−45
B. A. C. 6194	5.1	3.68	5.7	27 4.8	23 15.1	− 6 9.9	+1.0463	0.5926	+0.0571	+63	+22
λ Sagittarii	2.9	+3.71	− 4.5	−25 28.8	2 3 7.1	− 2 27.3	−0.3372	0.5906	+0.0683	+ 3	−64
B. A. C. 6369	6.2	3.77	− 2.6	26 6.9	9 42.2	+ 3 52.0	−0.1988	0.5885	0.0870	+11	54
B. A. C. 6607	5.9	3.94	+ 1.2	22 35.6	3 0 4.4	− 6 19.5	−1.2576	0.5764	0.1243	−54	90
χ^1 Sagittarii	5.4	4.01	1.3	24 42.5	1 55.6	− 4 32.5	+1.1458	0.5751	0.1288	+65	+30
χ^2 Sagittarii	6.3	4.02	1.3	24 36.8	1 58.2	− 4 30.0	+1.0540	0.5750	0.1289	+65	+22
χ^3 Sagittarii	5.6	+4.00	+ 1.5	−24 9.8	2 1.7	− 4 26.7	+0.5993	0.5750	+0.1290	+60	−10
53 Sagittarii	6.7	4.06	3.1	23 39.7	7 57.3	+ 1 15.6	+0.8910	0.5705	0.1428	+66	+ 9
B. A. C. 6727	6.2	4.07	3.2	23 39.8	8 4.6	+ 1 22.6	+0.9110	0.5702	0.1431	+66	+10
σ Capricorni	5.6	4.14	8.5	19 26.3	4 0 54.7	− 6 24.1	−0.7393	0.5566	0.1771	− 7	90
π Capricorni	5.1	4.15	9.5	18 32.8	4 24.8	− 3 1.3	−1.0300	0.5538	0.1841	−25	−90
B. A. C. 7044	7.0	+4.15	+ 9.7	−18 12.7	5 9.9	− 2 17.8	−1.2399	0.5532	+0.1850	−43	−90
ο Capricorni	6.2	4.17	9.6	18 55.3	5 32.9	− 1 55.6	−0.4318	0.5528	0.1861	+10	−71
υ Capricorni	5.7	4.19	10.9	18 29.9	10 5.4	+ 2 27.5	−0.0092	0.5493	0.1937	+33	−43
19 Capricorni	6.1	4.24	12.3	18 18.6	16 47.4	+ 8 55.8	+1.1297	0.5441	0.2041	+72	+24
B. A. C. 7263	5.9	4.22	13.1	16 25.5	18 8.0	+10 3.7	−0.5596	0.5426	0.2060	+ 6	−79
29 Capricorni	5.7	+4.26	+15.1	−15 35.7	5 2 33.7	− 5 37.4	+0.3618	0.5369	+0.2172	+56	−23

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER

The Stars					At Conjunction in R. A.					Limiting Parallels	
Name.	Mag.	Red'n from 1850, Δα	Red'n from 1850, Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N	S
		s	′	° ′	d h m	h m				°	°
18 Aquarii	5.7	+4.24	+16.4	13 18.9	5 6 35.1	−1 43.9	−1.1498	0.5141	+0.2220	28	90
λ Capricorni	5.7	4.30	18.9	11 50.2	17 23.2	+8 41.6	−0.2412	0.5272	0.2331	+26	56
50 Capricorni	6.9	4.28	18.7	12 9.9	17 27.8	+8 48.1	+0.1218	[illegible]	0.2332	+45	56
56 Aquarii	6.3	4.27	21.3	8 41.2	6 4 45.5	−4 15.2	0.8021	0.5209	0.2421	6	90
θ Aquarii	4.4	4.29	22.0	8 17.4	8 28.4	−0 50.1	0.3750	[illegible]	0.2444	+21	64
B A C 7774	6.4	+4.31	+21.7	9 32.8	8 30.5	0 58.0	+0.9574	0.5191	+0.2444	[illegible]	+10
ρ Aquarii	5.6	4.30	22.2	8 14.9	10 10.8	+1 0.2	+0.0844	0.5184	0.2454	+45	37
B A C 7952	6.7	4.29	24.7	4 45.4	7 0 22.6	9 11.4	0.1815	[illegible]	[illegible]	+32	52
κ Piscium	4.7	4.33	27.5	+0 41.9	20 51.0	+10 39.1	0.8329	0.5079	0.2517	2	89
9 Piscium	6.6	4.33	27.5	0 33.8	22 1.2	+10 49.1	0.6448	0.5079	0.2537	+9	84
15 Piscium	6.6	+4.33	+28.0	+0 45.1	8 1 22.6	8 57.0	+0.2575	0.5073	+0.2518	+57	28
16 Piscium	5.8	4.33	28.2	1 32.3	1 51.9	−8 29.5	0.4643	0.5073	0.2531	+19	70
λ Piscium	4.5	4.35	28.2	1 13.3	4 51.8	−5 11.5	+0.6352	0.5070	0.2529	+84	9
29 Piscium	4.9	4.35	28.6	2 55.4	7 10.0	3 19.5	[illegible]	0.5064	0.2532	+10	82
33 Piscium	5.0	4.36	28.7	2 21.9	10 7.1	0 27.5	+0.7273	0.5067	0.2512	+90	4
δ Piscium	5.5	+4.41	+29.6	+7 37.6	9 1 18.9	−9 41.9	−1.1848	[illegible]	+0.2447	26	82
45 Piscium	6.9	4.42	29.6	7 7.8	4 0.8	7 4.6	+0.0128	[illegible]	0.2431	+43	40
75 Piscium	6.0	4.51	30.5	12 24.7	10 1 30.3	10 13.4	[illegible]	[illegible]	[illegible]	+6	77
[illegible] Piscium	5.7	4.56	28.3	14 41.4	14 22.9	+2 17.5	0.4845	0.5145	0.2129	+27	64
101 Piscium	6.3	4.57	28.7	14 8.6	16 35.0	+4 [illegible]	[illegible]	0.5152	0.2104	+90	+1
103 Piscium	6.8	+4.59	+28.3	+16 6.6	18 21.5	+6 0.0	[illegible]	0.5158	[illegible]	−18	74
105 Piscium	6.3	4.59	28.4	15 55.5	18 34.4	+6 21.6	0.7732	[illegible]	[illegible]	0	69
3 Arietis	6.0	4.61	28.2	16 54.3	22 5.4	+9 46.2	1.1614	[illegible]	[illegible]	27	73
4 Arietis	5.7	4.61	28.2	16 27.0	22 54.9	+10 31.9	0.4970	[illegible]	[illegible]	+15	64
ι Arietis	5.7	4.63	27.7	17 12.3	11 3 33.0	9 55.3	0.5291	[illegible]	0.1965	+24	64
15 Arietis	5.7	[illegible]	[illegible]	+19 1.3	10 12.5	2 29.5	1.1224	0.5207	[illegible]	−24	71
B A C 686	7.2	[illegible]	26.7	19 8.4	11 40.6	0 54.4	[illegible]	[illegible]	0.1847	12	71
θ Arietis	5.7	[illegible]	[illegible]	19 25.9	13 57.2	+1 4.3	[illegible]	[illegible]	[illegible]	7	71
23 Arietis	7.5	[illegible]	[illegible]	19 13.4	14 27.8	+1 [illegible]	[illegible]	[illegible]	[illegible]	+12	64
26 Arietis	6.0	[illegible]	[illegible]	19 24.3	20 9.1	+7 9.7	+0.2401	[illegible]	0.1715	+56	19
[illegible] Arietis	6.0	[illegible]	[illegible]	[illegible]	12 1 54.9	11 15.3	+1.0121	[illegible]	+0.1624	+90	+28
ε Arietis	4.6	[illegible]	[illegible]	20 56.1	10 5.5	[illegible]	[illegible]	[illegible]	0.1451	+90	+12
66 Arietis	6.0	[illegible]	[illegible]	[illegible]	13 0 [illegible]	+10 11.5	[illegible]	[illegible]	0.1217	+90	+29
7 Tauri	6.0	[illegible]	[illegible]	24 [illegible]	2 52.2	11 5.5	0.5247	[illegible]	0.1161	+13	55
9 Tauri	7.0	4.81	[illegible]	22 50.5	4 5.0	9 55.1	[illegible]	[illegible]	0.1137	+90	+30
11 Tauri	6.7	+4.85	+13.4	+25 0.1	5 50.2	8 11.3	1.1619	[illegible]	[illegible]	−32	65
[illegible] Eridani	6.3	4.85	[illegible]	23 48.2	7 45.0	−6 22.3	[illegible]	[illegible]	[illegible]	+54	15
17 Tauri	4.3	[illegible]	[illegible]	23 47.7	7 47.2	6 20.2	[illegible]	[illegible]	[illegible]	+67	5
18 Tauri	6.3	[illegible]	[illegible]	24 31.5	7 54.5	6 13.1	0.4055	[illegible]	[illegible]	+20	47
19 Tauri	5.0	[illegible]	19.2	24 9.0	7 [illegible]	6 11.6	[illegible]	[illegible]	[illegible]	+45	24
20 Tauri	5.0	[illegible]	[illegible]	[illegible]	8 13.7	−5 54.5	+0.1495	[illegible]	[illegible]	+41	17
21 Tauri	7.0	[illegible]	[illegible]	24 14.3	8 15.7	5 12.6	0.0543	[illegible]	[illegible]	[illegible]	[illegible]
22 Tauri	7.0	[illegible]	19.1	24 12.7	8 19.8	5 [illegible]	[illegible]	[illegible]	[illegible]	+4	25
23 Tauri	4.7	[illegible]	[illegible]	23 58.0	8 28.2	−5 41.5	[illegible]	[illegible]	[illegible]	[illegible]	9
η Tauri	3.1	4.82	[illegible]	23 47.5	9 0.6	−5 9.2	[illegible]	[illegible]	0.1035	[illegible]	3
26 Tauri	7.0	+4.82	[illegible]	+23 51.0	9 42.0	−4 29.1	[illegible]	[illegible]	[illegible]	+90	+24
27 Tauri	4.2	[illegible]	[illegible]	23 [illegible]	9 [illegible]	−4 13.4	[illegible]	[illegible]	[illegible]	[illegible]	+10
28 Tauri	[illegible]	[illegible]	[illegible]	23 [illegible]	9 [illegible]	−4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5
B A C 1192	6.0	[illegible]	18.4	23 [illegible]	10 18.4	−3 51.2	[illegible]	[illegible]	[illegible]	[illegible]	65
56 Tauri	[illegible]	[illegible]	[illegible]	23 [illegible]	10 33.2	+2 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+53
ρ Tauri	6.0	[illegible]	[illegible]	[illegible]	12 [illegible]	+5 19.3	1.1741	0.541	[illegible]	[illegible]	64
ι Tauri	5.7	[illegible]	[illegible]	[illegible]	14 1 [illegible]	+10 35.0	[illegible]	[illegible]	[illegible]	+51	[illegible]
115 Tauri	6.0	[illegible]	[illegible]	[illegible]	15 12 [illegible]	5 25.4	[illegible]	[illegible]	[illegible]	[illegible]	+18
133 Tauri	5.5	[illegible]	[illegible]	[illegible]	20 45.4	+4 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8
ε Geminorum	3.2	[illegible]	[illegible]	25 [illegible]	16 17 43.2	+0 51.1	[illegible]	.5439	[illegible]	+90	84
37 Geminorum	6.3	+4.11	[illegible]	+25 [illegible]	22 57.5	+5 54.2	[illegible]	0.5419	0.0913	−4	−64

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Red'ns from 1897.0. Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N	S
		s	"	° '	d h m	h m				°	°
ω Geminorum	5.7	+4.24	− 1.0	+24 21.7	17 2 15.4	+ 9 5.5	+0.1497	0.5411	−0.0984	+51	−16
48 Geminorum	6.0	4.18	2.1	24 18.0	6 53.9	−10 25.4	−0.2627	0.5401	0.1083	+27	−39
52 Geminorum	6.3	4.19	2.7	25 3.8	7 55.6	− 9 25.7	−1.2105	0.5398	0.1105	−38	−65
58 Geminorum	6.3	4.09	2.8	23 8.5	12 2.9	− 5 26.6	+0.4184	0.5389	0.1191	+69	− 5
84 Geminorum	6.8	3.90	5.6	22 35.8	18 1 54.7	+ 7 57.9	−0.8307	0.5353	0.1466	− 5	−67
μ^2 Cancri	5.7	+3.79	− 6.7	+21 52.7	8 54.6	− 9 15.8	−1.1201	0.5334	−0.1597	−26	−68
B. A. C. 2788	6.0	3.68	7.3	21 4.2	14 55.4	− 3 26.6	−1.2350	0.5320	0.1705	−38	−69
d^1 Cancri	6.0	3.62	6.9	18 39.6	16 24.9	− 2 0.1	+1.1105	0.5316	0.1731	+90	+32
θ Cancri	5.7	3.56	7.6	18 26.4	20 22.0	+ 1 49.4	+0.6492	0.5307	0.1798	+89	+ 1
35 Cancri	6.3	3.56	8.5	19 56.5	22 8.0	+ 3 32.0	−1.2874	0.5302	0.1827	−44	−70
B. A. C. 2899	7.2	+3.54	− 8.7	+19 37.5	23 19.2	+ 4 40.9	−1.1630	0.5300	−0.1847	−29	−70
δ Cancri	4.0	3.47	8.9	18 31.8	19 2 40.2	+ 7 55.5	−0.6140	0.5292	0.1901	+ 9	−68
o^1 Cancri	5.7	3.34	8.8	15 42.9	8 47.7	−10 8.7	+1.2081	0.5280	0.1995	+90	+37
o^2 Cancri	6.0	3.35	8.9	15 58.6	8 57.3	− 9 59.3	+0.8962	0.5280	0.1998	+90	+13
68 Cancri	7.5	3.34	9.8	17 28.9	10 56.9	− 8 3.5	−1.1146	0.5276	0.2028	−23	−73
π^1 Cancri	6.3	+3.21	− 9.7	+15 24.5	16 9.3	− 3 1.0	+0.0240	0.5268	−0.2102	+44	−35
π^2 Cancri	6.0	3.22	10.1	15 22.0	17 33.8	− 1 39.1	−0.2290	0.5265	0.2121	+30	−48
18 Leonis	6.0	2.96	11.4	12 16.9	20 8 52.4	−10 49.2	−0.3601	0.5251	0.2313	+23	−59
19 Leonis	7.0	2.94	11.4	12 2.5	9 23.4	−10 19.3	−0.2276	0.5250	0.2319	+30	−51
21 Leonis	6.8	2.93	11.6	12 19.2	11 3.1	− 8 42.7	−0.9068	0.5250	0.2337	− 7	−78
A Leonis	4.7	+2.82	−12.2	+10 29.9	19 28.6	− 0 32.9	−0.9980	0.5251	−0.2424	−13	−79
43 Leonis	6.5	2.69	12.2	7 3.7	21 2 55.6	+ 6 40.1	+0.7576	0.5255	0.2489	+90	− 1
48 Leonis	5.5	2.63	12.9	7 28.8	8 42.7	−11 43.7	−1.1293	0.5263	0.2533	−22	−83
34 Sextantis	6.7	2.56	12.2	4 7.1	12 33.8	− 7 59.8	+1.3702	0.5269	0.2559	+90	+48
35^1 Sextantis	6.2	2.57	12.6	5 17.0	12 53.9	− 7 40.4	+0.0796	0.5269	0.2562	+46	−37
d Leonis	5.3	+2.49	−13.2	+ 4 10.0	21 17.5	+ 0 27.4	−0.9377	0.5289	−0.2607	− 8	−86
p^3 Leonis	6.2	2.42	13.1	2 30.7	22 0 23.7	+ 3 27.7	−0.0482	0.5294	0.2619	+40	−45
76 Leonis	6.3	2.39	13.6	+ 2 12.7	6 10.2	+ 9 3.1	−1.2583	0.5316	0.2640	−32	88
υ Leonis	4.4	2.30	13.6	− 0 15.5	14 47.1	− 6 36.7	−1.0179	0.5350	0.2655	−13	−90
q Virginis	5.7	2.10	13.8	8 53.3	23 17 5.4	− 5 10.8	+0.7486	0.5496	0.2587	+79	− 3
				NEW	*MOON.*						
42 Libræ	5.7	+2.41	−13.3	−23 29.2	26 20 38.2	− 4 31.3	−0.3829	0.6055	−0.1234	+ 5	−66
b Scorpii	5.3	2.46	12.9	25 26.5	27 0 33.3	− 0 46.1	+1.0782	0.6074	0.1118	+65	+24
A^2 Scorpii	5.2	2.47	12.8	25 1.4	1 31.8	+ 0 10.0	+0.5590	0.6079	0.1090	+56	11
B. A. C. 5253	5.8	2.47	12.8	24 13.8	1 38.8	+ 0 16.7	−0.2346	0.6079	0.1087	+11	−56
B. A. C. 5254	5.8	+2.47	−13.0	−23 40.5	1 40.0	+ 0 17.8	−0.7828	0.6079	−0.1087	−18	90
3 Scorpii	6.7	2.47	12.7	24 56.5	1 55.0	+ 0 32.1	+0.4370	0.6080	0.1079	+48	−17
π Scorpii	6.3	2.50	12.7	25 49.3	3 26.5	+ 1 59.8	+1.1412	0.6086	0.1033	+64	+31
B. A. C. 5314	5.7	2.52	12.5	25 34.9	5 5.5	+ 3 34.5	+0.7393	0.6092	0.0982	+64	0
B. A. C. 5347	6.0	2.55	12.5	26 3.2	6 49.4	+ 5 14.0	+1.0384	0.6098	0.0929	+64	+22
σ Scorpii	3.4	+2.60	11.7	−25 20.9	11 35.8	+ 9 48.1	−0.0625	0.6112	−0.0779	+18	−46
α Scorpii	1.2	2.65	11.5	26 12.4	14 34.0	−11 21.4	+0.5660	0.6118	0.0684	+53	+10
22 Scorpii	5.5	2.64	11.3	24 53.5	14 52.7	−11 3.6	−0.7519	0.6118	0.0674	−20	−90
25 Scorpii	7.0	2.74	10.5	25 20.6	20 54.0	− 5 17.8	−0.6546	0.6124	0.0480	−16	90
31 Ophiuchi	6.7	2.85	9.6	25 30.0	28 3 21.9	+ 0 53.3	−0.7415	0.6123	0.0268	−23	90
B. A. C. 5800	7.5	+2.90	− 9.4	−26 51.8	6 47.1	+ 4 9.6	+0.5347	0.6118	−0.0156	+47	−12
A Ophiuchi	4.9	2.87	10.1	26 27.2	7 13.1	+ 4 34.5	+0.1221	0.6117	0.0142	+22	−35
B. A. C. 5813	6.8	2.87	10.0	26 24.1	7 32.2	+ 4 52.7	+0.0654	0.6116	0.0131	+19	−38
38 Ophiuchi	6.7	2.90	9.1	26 31.1	8 1.9	+ 5 21.1	+0.1756	0.6116	−0.0115	+25	−32
λ Sagittarii	2.9	3.27	4.1	25 28.8	29 9 58.1	+ 6 11.2	−0.0816	0.5998	+0.0702	+16	47
25 Sagittarii	6.3	+3.29	− 3.0	−24 18.1	12 28.6	+ 8 35.4	−1.0789	0.5980	+0.0776	−41	−90
B. A. C. 6369	6.2	3.35	− 2.4	25 6.9	16 22.7	−11 40.0	+0.0616	0.5952	0.0888	+25	−39
B. A. C. 6607	5.9	3.48	+ 1.4	22 35.7	30 6 24.2	+ 1 47.9	−0.9726	0.5834	0.1261	−28	−90
γ^1 Sagittarii	5.6	3.54	1.3	24 9.8	8 19.0	+ 3 38.2	+0.8639	0.5816	0.1308	+66	+ 8
53 Sagittarii	6.7	3.60	2.7	23 39.7	14 7.3	+ 9 13.1	+1.1568	0.5764	0.1445	+66	+31
B. A. C. 6727	6.2	+3.60	+ 2.7	−23 39.8	14 14.5	+ 9 20.0	+1.1766	0.5762	+0.1448	+66	+33

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

OCTOBER

Name.	Mag.	Red. to from Sigma $\Delta\alpha$	$\Delta\delta$	Apparent Declination	Wash. Mean Time	Hour Angle H	Y	x'	y'	Limiting Parallels N	S
		°	°	° ′	d h m	h m				°	°
σ Capricorni	5·6	+3·70	+7·6	19 26·3	21 6 48·0	+1 16·6	0·4400	0·5603	+0·1788	+9	70
[illegible] Capricorni	5·2	3·72	8·6	18 32·8	10 15·2	+4 56·5	0·7155	0·5572	0·1840	7	90
[illegible] Capricorni	5·3	3·72	8·5	18 9·2	10 56·0	+5 15·8	1·0158	0·5560	0·1801	24	90
B A C 7044	7·0	3·72	8·7	18 12·7	10 59·7	+5 19·4	−0·9471	0·5565	0·1802	19	90
ο Capricorni	6·2	3·74	8·6	18 55·3	11 22·4	+5 41·3	0·1438	0·5561	0·1808	+25	90
ν Capricorni	5·7	+1·77	+9·5	18 29·9	15 52·0	+10 1·4	+0·2748	0·5519	+0·1942	+48	27
B A C 7263	5·9	+3·80	+11·6	−16 25·5	23 50·2	−6 16·8	−0·2736	0·5449	+0·2060	+29	58

NOVEMBER

Name.	Mag.	$\Delta\alpha$	$\Delta\delta$	Apparent Declination	Wash. Mean Time	Hour Angle H	Y	x'	y'	N	S
29 Capricorni	5·7	+3·85	+13·5	−15 55·7	1 8 12·7	+1 49·0	+0·6173	0·5370	+0·2168	+72	8
18 Aquarii	5·7	3·86	14·9	13 19·0	12 13·0	+5 41·4	0·8023	0·5347	0·2213	9	90
λ Capricorni	5·7	3·92	17·6	11 50·2	22 59·6	7 52·6	+0·0296	0·5268	0·2317	+40	41
90 Capricorni	6·9	3·93	17·4	12 9·9	23 4·2	−7 48·1	+0·9025	0·5267	0·2318	+61	22
96 Aquarii	6·3	+3·96	+20·4	8 41·2	2 10 22·7	+3 9·1	0·6006	0·5136	+0·2401	+9	81
θ Aquarii	4·4	3·99	20·9	8 17·4	14 6·2	+6 46·0	0·1217	0·5126	0·2422	+34	49
B A C 7774	6·4	4·00	20·6	9 32·0	14 7·2	+6 47·0	+1·2129	0·5126	0·2422	+80	+29
ρ Aquarii	5·6	4·00	21·1	8 19·9	15 48·9	+8 25·6	+0·3381	0·5167	0·2431	+60	24
ι Aquarii	5·2	4·01	23·4	4 45·2	3 0 50·8	6 48·6	1·2485	0·5125	0·2480	54	90
B A C 7951	6·7	+4·05	+24·8	−4 45·4	6 4·0	1 43·7	+0·0507	0·5105	+0·2486	+44	40
ε Piscium	4·7	4·17	27·1	+0 41·9	4 2 42·8	5 41·7	0·6303	0·5040	0·2501	+9	84
9 Piscium	6·6	4·20	27·1	0 11·8	2 53·1	5 51·6	0·4511	0·5042	0·2501	+19	69
15 Piscium	6·6	4·19	27·7	0 45·1	7 16·7	1 15·5	+0·4442	0·5041	0·2405	+68	19
16 Piscium	5·8	4·19	28·0	1 32·3	7 46·4	0 46·6	0·2801	0·5042	0·2494	+28	58
λ Piscium	4·5	+4·21	+27·9	+1 13·2	10 47·8	+2 9·6	+0·8159	0·5040	+0·2488	+90	+1
19 Piscium	4·9	4·22	28·6	2 55·4	11 7·2	+4 25·1	0·4442	[illegible]	0·2492	+19	68
22 Piscium	5·0	4·25	28·6	2 21·9	16 5·9	+7 18·0	+0·[illegible]	[illegible]	0·2474	+90	+6
ι Piscium	5·3	4·17	30·1	7 17·6	5 7 26·1	1 47·3	1·0528	0·5045	0·2409	17	82
45 Piscium	6·9	4·18	30·0	7 7·8	10 9·6	+0 51·6	+0·1340	0·5046	0·2394	+49	34
75 Piscium	6·0	+4·57	+30·7	+12 24·7	6 7 48·7	2 6·4	0·6157	0·5091	+0·2231	+101	74
[illegible] Piscium	5·7	4·70	30·1	14 49·4	20 47·4	+10 22·5	0·4502	0·5112	0·2050	+15	62
101 Piscium	6·3	4·72	30·0	14 8·6	23 0·8	11 21·0	+0·7014	0·5140	0·2073	+90	4
104 Piscium	6·8	4·75	30·1	16 6·7	7 0 47·3	9 17·7	1·0170	0·5146	0·2053	17	74
105 Piscium	6·3	4·75	32·2	15 55·5	1 0·3	9 25·0	0·7511	0·5147	0·2050	+2	72
5 Arietis	6·0	+4·79	+30·7	+16 54·3	4 32·5	5 50·2	1·1434	0·5159	+0·2007	26	71
4 Arietis	5·7	4·80	30·8	16 27·1	5 21·7	−5 11·4	0·4803	0·5161	0·1997	+16	69
[illegible] Arietis	5·7	4·84	32·4	17 19·4	10 1·5	+0 41·0	0·5221	0·5181	0·1917	+14	64
15 Arietis	5·7	4·92	28·8	19 1·3	18 42·6	+5 6·1	1·1410	0·5228	0·1849	26	71
B A C 686	7·2	4·93	28·7	19 8·4	18 30·1	+7 15·6	0·9733	0·5215	0·1821	13	71
θ Arietis	5·7	+4·95	+28·5	+19 25·0	20 28·0	+9 27·7	0·9119	0·5224	+0·1790	9	71
33 Arietis	7·5	4·95	28·1	19 11·5	20 58·8	+9 47·4	0·9203	0·5226	0·1782	+10	66
36 Arietis	6·3	5·00	27·6	19 24·3	8 2 41·0	8 50·9	+0·2026	0·5263	0·1[illegible]	+54	21
ο Arietis	6·0	5·07	26·7	19 34·8	8 27·6	2 55·0	+0·2805	0·5274	0·1600	+90	+22
ρ Arietis	4·6	5·14	25·4	20 46·1	16 38·9	+5 0·2	+0·7134	0·5302	0·1460	+90	+9
66 Arietis	6·0	+5·25	+22·8	+22 27·3	9 6 17·3	5 27·5	+0·8881	0·5374	+0·1197	+90	+22
[illegible] Tauri	6·0	5·32	22·2	24 7·5	9 21·5	2 44·5	0·[illegible]	0·5374	0·1141	+6	62
9 Tauri	[illegible]	5·32	21·8	22 52·6	10 18·7	1 54·2	+0·8[illegible]	0·5372	0·1117	+90	+21
11 Tauri	6·7	5·37	21·4	25 0·1	12 21·8	+0 [illegible]	1·2419	0·5385	0·1082	55	65
4 [illegible]	6·3	5·35	21·0	23 58·3	14 18·6	+1 58·8	+0·0865	0·5401	0·1048	+46	21
17 Tauri	4·1	+5·35	+21·1	+23 47·7	14 20·8	+2 0·9	+0·3058	0·5402	+0·1042	+58	11
18 Tauri	6·3	5·37	21·2	24 11·5	14 28·1	+2 8·2	0·5225	0·5403	0·1040	+12	54
19 Tauri	5·0	5·36	21·1	24 7·0	14 29·7	+2 9·5	0·1116	0·5404	0·1039	+96	41
20 Tauri	5·0	5·36	21·1	24 3·1	14 47·3	+2 27·5	+0·0268	0·5413	0·1035	+44	23
21 Tauri	7·0	5·36	21·1	24 14·3	14 49·4	+2 28·5	0·1771	0·5413	0·1032	+32	34
22 Tauri	7·0	+5·36	+21·1	+24 12·7	14 53·4	+2 32·4	0·1408	0·5415	+0·1030	+34	−32

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	"	° ′	d h m	h m				°	°
23 Tauri	4.7	+5.35	+20.9	+23 38.0	9 15 1.8	+ 2 40.6	+0.5133	0.5393	+0.1028	+77	+ 2
η Tauri	3.1	5.36	20.8	23 47.5	15 34.2	+ 3 11.9	+0.3949	0.5396	0.1016	+67	− 4
26 Tauri	7.0	5.36	20.7	23 32.8	16 15.5	+ 3 51.9	+0.7369	0.5398	0.1002	+90	+15
27 Tauri	4.0	5.36	20.6	23 44.6	16 21.4	+ 3 57.6	+0.5279	0.5399	0.1000	+78	+ 3
28 Tauri	6.2	5.36	20.6	23 49.6	16 22.0	+ 3 58.1	+0.4361	0.5399	0 1000	+70	− 2
B. A. C. 1192	6.0	+5.40	+20.5	+25 16.4	16 51.8	+ 4 27.0	−1.1210	0.5400	+0.0990	−29	−65
36 Tauri	6.0	5.38	19.1	23 49.6	23 26.5	+10 48.7	+1.0913	0.5420	0.0850	+90	+40
χ Tauri	5.7	5.46	16.9	25 23.4	10 7 50.1	− 5 4.4	−0.0093	0.5441	+0.0667	+42	−19
125 Tauri	6.0	5.45	7.3	25 50.5	11 19 2.3	+ 4 56.4	+0.4242	0.5472	−0.0142	+70	+ 7
139 Tauri	5.3	5.42	+ 5.0	25 56.5	12 3 21.1	−11 1.6	+0.1164	0.5465	0.0336	+49	−11
ε Geminorum	3.2	+5.26	− 0.8	+25 14.0	13 0 26.9	+ 9 21.7	−0.3113	0.5424	−0.0809	+24	−39
37 Geminorum	6.3	5.21	2.3	25 30.2	5 43.3	− 9 32.5	−1.0661	0.5409	0.0922	−24	−64
ω Geminorum	5.7	5.14	2.9	24 21.7	9 3.1	− 6 19.2	−0.1233	0.5399	0.0993	+35	−30
48 Geminorum	6.0	5.10	4.1	24 18.0	13 44.6	− 1 47.0	−0.5435	0.5384	0.1090	+12	−56
58 Geminorum	6.3	4.98	5.1	23 8.5	18 57.3	+ 3 15.4	+0.1364	0.5368	0.1195	+50	−19
84 Geminorum	6.8	+4.82	− 8.5	+22 35.8	14 9 1.3	− 7 7.9	−0.1135	0.5320	−0.1464	+35	−33
d^2 Cancri	6.0	4.53	10.6	18 39.6	23 47.6	+ 7 10.2	+0.8141	0.5270	0.1719	+90	+11
θ Cancri	5.7	4.47	11.4	18 26.3	15 3 49.8	+11 4.9	+0.3462	0.5257	0.1784	+63	−15
δ Cancri	4.0	4.39	13 0	18 31.8	10 16.5	− 6 40.4	−0.9329	0.5237	0.1882	−11	−71
$σ^1$ Cancri	5.7	4.22	13.0	15 42.8	16 32.8	− 0 35.8	+0.9078	0.5216	0.1974	+90	+14
$σ^2$ Cancri	6.0	+4.24	−13.1	+15 58.5	16 42.6	− 0 26.3	+0.5931	0.5215	−0.1975	+82	− 4
$π^1$ Cancri	6.3	4.10	14.1	15 24.4	16 0 5.8	+ 6 43.2	−0.2903	0.5202	0.2074	+27	−52
$π^4$ Cancri	6.0	4.11	14.5	15 21.9	1 32.5	+ 8 7.4	−0.5455	0.5198	0.2093	+13	−67
18 Leonis	6.0	3.82	16.0	12 16.8	17 16.9	− 0 37.0	−0.6742	0.5174	0.2274	+ 6	−77
19 Leonis	7.0	3.80	15.9	12 2.4	17 48.8	− 0 6.1	−0.5396	0.5174	0.2280	+14	−70
21 Leonis	6.8	+3.79	−16.3	+12 19.1	19 31.4	+ 1 33.4	−1.2269	0.5172	−0.2297	−31	−78
A Leonis	4.7	3.64	16.9	10 29.9	17 4 12.2	+ 9 58.6	−1.3138	0.5169	0.2378	−40	−79
43 Leonis	6.5	3.51	16.9	7 3.6	11 53.1	− 6 34.4	+0.4728	0.5182	0.2440	+71	−16
34 Sextantis	6.7	3.35	16.9	4 7.0	21 49.3	+ 3 3.7	+1.1057	0.5183	0.2506	+90	+20
35^1 Sextantis	6.2	3.36	17.4	5 16.9	22 10.0	+ 3 23.7	−0.2025	0.5184	0.2508	+31	−53
p^2 Leonis	6.2	+3.18	−17.7	+ 2 30.6	18 10 1.2	− 9 6.8	−0.3149	0.5215	−0.2565	+26	−60
υ Leonis	4.4	3.01	17.8	− 0 15.6	19 0 50.3	+ 5 14.6	−1.2697	0.5268	0 2597	−34	−90
q Virginis	5.7	2.73	16.9	8 53.3	20 3 48.2	+ 7 20.2	+0.5801	0.5432	0.2533	+75	−12
75 Virginis	6.0	2.58	15.9	14 50.3	21 5 53.1	+ 8 30.5	+0.2038	0.5654	0.2289	+47	−31
83 Virginis	6.0	2.57	15.8	15 39.9	10 46.4	−10 46.9	−0.0764	0.5701	0.2220	+32	−46
85 Virginis	6.5	+2.56	−15.8	−15 15.3	11 13.9	−10 20.5	−0.5793	0.5706	−0.2213	+ 5	−80
				NEW	*MOON.*						
B. A. C. 5800	7.5	2 87	8.0	26 51.8	24 17 8.2	− 7 41.1	+0.6479	0.6212	0.0140	+56	− 5
A Ophiuchi	4.9	2.84	8.9	26 27.2	17 33.4	− 7 17.0	+0.2413	0.6211	0.0116	+28	−28
B. A C. 5813	6.8	2.84	8.8	26 24.0	17 52.0	− 6 59.3	+0.1861	0 6211	0.0111	+25	−31
38 Ophiuchi	6.7	+2.87	− 7.8	−26 31.1	18 20.8	− 6 31.8	+0.3029	0.6211	−0.0094	+32	−25
63 Ophiuchi	6.6	2.98	5.3	24 52.1	25 7 34.8	+ 6 7.1	−1.1518	0.6162	+0.0351	−50	−90
λ Sagittarii	2 9	3 09	3.2	25 28.8	19 30.0	− 6 28.8	+0.0971	0.6111	0.0734	+25	−37
B. A C 6304	7 0	3 08	2.4	24 11.1	21 26 9	− 4 36.9	−1.0341	0 6097	0.0794	−37	−90
24 Sagittarii	5 9	3 08	2.3	24 6.6	21 41 3	− 4 23.1	−1.0873	0 6096	0.0802	−41	−90
25 Sagittarii	6 3	+3 09	− 2.3	−24 18.1	21 55 6	− 4 9.4	−0.8790	0 6094	+0.0809	−26	−90
26 Sagittarii	6 6	3 11	1.6	23 55 8	26 0 37.2	− 1 34.8	−1.0180	0 6076	0.0890	−35	−90
B. A C. 6369	6.2	3.14	− 1.6	25 6.8	1 41 8	− 0 32.9	+0 2504	0.6066	0 0922	+36	−28
B A C. 6607	5 9	3 21	+ 1.5	22 35.6	15 14 8	−11 33.7	−0.7406	0.5947	0.1300	−13	90
$χ^3$ Sagittarii	5 6	3 26	1 5	24 9.8	17 5.7	− 9 47.3	+1.0678	0 5928	0 1348	+66	+23
σ Capricorni	5 6	+3.37	+ 7.2	−19 26.3	27 14 49.2	+11 5.6	−0.1905	0.5707	+0.1825	+22	−53
π Capricorni	5 1	3.38	7.9	18 32 8	18 9 8	− 9 41.1	−0 4697	0 5671	0 1890	+ 8	−72
ρ Capricorni	5.3	3 38	8.2	18 9.1	18 49.3	− 9 3.1	−0.7437	0.5665	0.1902	− 7	−90
B A. C. 7044	7 0	3.38	8.1	18 12.7	18 52 9	− 8 59.6	−0.6737	0 5664	0 1903	− 3	−90
ο Capricorni	6.2	3.40	8.0	18 55.3	19 14.9	− 8 38.4	+0.1154	0.5663	0.1909	+39	−36
υ Capricorni	5.7	+3.42	+ 9.1	−18 29.9	23 35 8	− 4 27.0	+0.5335	0.5615	+0.1982	+63	−13

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

NOVEMBER.

The Star's					At Conjunction in R.A.					Limiting Parallels	
Name.	Mag.	Red'ns from 1897·0 $\Delta\alpha$	$\Delta\delta$	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
		°	°	° ′	d h m	h m				°	°
B.A.C. 7263	5·9	+3·45	+21·0	+16 25·5	28 7 13·5	+3 0·2	+0·[illegible]	0·55[illegible]	+0·[illegible]	+35	42
29 Capricorni	5·7	3·51	21·7	15 15·5	15 [illegible]	+10 51·1	+0·[illegible]	0·5450	0·2501	+74	+8
18 Aquarii	5·7	3·50	24·0	13 19·0	19 21·3	−9 22·7	0·[illegible]	0·5421	0·2346	+8	70
λ Capricorni	5·7	3·57	26·3	11 50·2	29 5 5·5	+0 46·9	+0·3163	0·5113	0·2345	+56	25
50 Capricorni	6·9	3·58	26·0	12 9·9	5 [illegible]	+0 51·3	+0·6746	0·5[illegible]	0·2346	+77	6
56 Aquarii	6·3	+3·62	+18·9	+8 41·2	16 50·3	+11 33·5	+0·9047	0·5249	+0·2422	+24	90
θ Aquarii	4·4	3·65	19·4	8 17·4	20 [illegible]	8 54·3	+0·[illegible]	0·5224	0·2441	+49	33
ρ Aquarii	5·6	3·[illegible]	19·6	8 20·0	22 19·2	−7 16·5	+0·6241	0·5214	0·2449	+79	9
α Aquarii	3·2	3·69	21·9	4 45·2	30 7 11·6	+1 19·7	0·94[illegible]	0·5163	0·2481	10	−90
B.A.C. 7952	6·7	+3·73	+22·2	+4 45·4	12 20·9	+6 19·7	+0·3364	0·5136	+0·2493	+60	25

DECEMBER.

Name.	Mag.	$\Delta\alpha$	$\Delta\delta$	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
ε Piscium	4·7	+3·92	+25·8	+0 41·9	1 8 44·7	+2 7·7	−0·3647	0·5060	+0·2496	+23	−63
9 Piscium	6·6	+3·92	+25·9	+0 31·8	8 54·9	+2 17·7	−0·1778	0·5062	+0·2497	+33	52
15 Piscium	6·6	3·91	26·4	0 45·1	13 16·[illegible]	+6 31·8	+0·7081	0·5052	0·2457	+90	3
16 Piscium	5·8	3·91	26·5	1 32·3	13 45·8	+7 0·3	−0·01[illegible]	0·5051	0·2456	+41	43
λ Piscium	4·5	3·9[illegible]	26·6	1 13·2	16 40·2	+9 55·5	+1·07[illegible]	0·5046	0·24[illegible]	+90	+17
19 Piscium	4·9	3·98	27·4	2 55·4	19 4·7	11 50·0	0·18[illegible]	0·5043	0·24[illegible]	+32	52
22 Piscium	5·0	+4·01	+27·3	+2 21·9	22 2·6	−8 57·2	+1·1484	0·5039	+0·24[illegible]	+90	+23
d Piscium	5·3	4·17	29·4	7 37·6	2 13 20·0	+5 54·2	0·8[illegible]	0·50[illegible]	0·23[illegible]	2	82
45 Piscium	6·9	4·19	29·2	7 7·8	16 3·2	+8 32·6	+0·9[illegible]	0·5017	0·2[illegible]	+[illegible]	22
75 Piscium	6·0	4·45	30·5	12 24·7	3 13 41·6	+5 35·9	0·4246	0·50[illegible]	0·22[illegible]	+20	69
e Piscium	5·7	4·61	30·4	14 49·4	4 2 44·6	−5 45·5	0·2556	0·5112	0·2071	+27	52
101 Piscium	6·1	+4·67	+30·1	+14 8·6	4 58·5	−3 15·2	+0·2[illegible]	0·5130	+0·20[illegible]	+90	+10
103 Piscium	6·5	4·69	[illegible]	16 6·7	6 45·4	1 52·1	0·[illegible]	0·51[illegible]	0·20[illegible]	6	74
105 Piscium	6·1	4·71	30·4	15 51·5	6 58·4	1 59·5	0·[illegible]	0·51[illegible]	0·2[illegible]	+11	70
5 Arietis	6·2	4·76	30·4	16 54·3	10 31·4	+1 47·2	1·[illegible]	0·51[illegible]	0·1[illegible]	15	73
4 Arietis	5·7	4·77	30·2	16 27·1	11 20·5	+2 35·2	0·3[illegible]	0·5143	0·1[illegible]	+24	54
ι Arietis	5·7	+4·81	+29·9	+17 19·4	16 1·[illegible]	+7 [illegible]	0·[illegible]	0·5[illegible]	+0·1[illegible]	+21	−96
15 Arietis	5·[illegible]	4·9[illegible]	29·5	19 1·3	22 44·1	10 21·8	1·[illegible]	0·5[illegible]	0·1[illegible]	17	71
B.A.C. 886	7·2	4·9[illegible]	29·4	19 8·4	5 0 22·1	8 4[illegible]	0·[illegible]	0·5[illegible]	0·1[illegible]	5	71
θ Arietis	5·7	5·00	29·2	19 26·0	1 5[illegible]	6 42·3	0·[illegible]	0·5[illegible]	0·1[illegible]	2	71
23 Arietis	7·5	5·00	29·0	19 13·5	3 13·5	6 12·4	0·4[illegible]	0·52[illegible]	0·1755	+16	59
36 Arietis	6·0	+5·18	+28·3	+19 24·4	8 45·1	0 52·4	+0·[illegible]	0·5211	+0·16[illegible]	[illegible]	16
a Arietis	6·0	5·17	27·4	19 34·8	14 5[illegible]	+4 5[illegible]	+1·[illegible]	[illegible]	0·[illegible]	[illegible]	+29
ε Arietis	4·6	5·20	26·5	20 50·1	22 45·5	11 4·8	+0·[illegible]	0·5[illegible]	0·[illegible]	[illegible]	+13
66 Arietis	6·0	5·40	25·7	22 27·3	6 12 [illegible]	+2 2[illegible]	+0·[illegible]	0·5[illegible]	0·11[illegible]	[illegible]	+25
7 Tauri	6·0	5·57	23·5	24 7·5	15 35·1	+5 12·4	0·[illegible]	[illegible]	0·11[illegible]	+8	60
9 Tauri	[illegible]	+5·[illegible]	+22·9	+22 32·6	16 48·1	+6 21·0	+0·[illegible]	0·5[illegible]	+0·1[illegible]	[illegible]	+25
11 Tauri	6·[illegible]	5·65	22·8	25 0·1	18 [illegible]	+8 4·[illegible]	1·2544	0·5[illegible]	0·1[illegible]	46	65
f Pleiadum	6·[illegible]	5·[illegible]	22·2	23 58·[illegible]	20 [illegible]	+9 [illegible]	[illegible]	[illegible]	0·1[illegible]	49	19
17 Tauri	4·1	5·[illegible]	22·2	23 4[illegible]·7	20 [illegible]	+9 [illegible]	[illegible]	[illegible]	0·[illegible]	[illegible]	9
18 Tauri	6·3	5·[illegible]	22·2	24 31·3	20 57·8	+10 [illegible]	[illegible]	[illegible]	0·1[illegible]	+14	55
19 Tauri	[illegible]	+5·[illegible]	+22·2	+24 9·[illegible]	20 53·[illegible]	+10 [illegible]	0·[illegible]	[illegible]	+0·1[illegible]	[illegible]	[illegible]
20 Tauri	[illegible]	5·[illegible]	22·1	24 3·1	20 5[illegible]	[illegible]	[illegible]	[illegible]	0·10[illegible]	+45	21
21 Tauri	[illegible]	5·[illegible]	22·1	24 14·3	20 [illegible]	[illegible]	[illegible]	[illegible]	0·1[illegible]	[illegible]	[illegible]
22 Tauri	[illegible]	[illegible]	22·1	24 [illegible]	21 5·1	[illegible]	[illegible]	[illegible]	0·1[illegible]	[illegible]	[illegible]
23 Tauri	4·[illegible]	5·[illegible]	21·0	23 5[illegible]	22 11·5	+10 3[illegible]	[illegible]	[illegible]	0·1[illegible]	[illegible]	+4
η Tauri	3·1	+5·[illegible]	+21·[illegible]	+23 4[illegible]	21 45·[illegible]	+11 [illegible]	[illegible]	[illegible]	+0·[illegible]	[illegible]	[illegible]
27 Tauri	7	5·[illegible]	2[illegible]	23 32·8	22 25·[illegible]	+11 [illegible]	[illegible]	[illegible]	0·[illegible]	[illegible]	+16
27 Tauri	[illegible]	[illegible]	[illegible]	23 44·[illegible]	22 [illegible]	+11 [illegible]	[illegible]	[illegible]	0·[illegible]	[illegible]	+5
28 Tauri	[illegible]	5·[illegible]	21·[illegible]	23 4[illegible]	22 [illegible]	+[illegible]	+0·4[illegible]	[illegible]	0·[illegible]	[illegible]	0
B.A.C. 1132	6·[illegible]	5·[illegible]	21·6	23 2[illegible]·4	23 1·7	11 [illegible]	1·[illegible]	[illegible]	0·[illegible]	[illegible]	65
56 Tauri	6·[illegible]	+5·72	+20·0	+23 42·7	7 5 5[illegible]	−5 11·8	+1·0[illegible]	0·54[illegible]	+0·0[illegible]	+90	+41

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS.

DECEMBER.

The Star's					At Conjunction in R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1897.0. Δα	Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N.	S.
		s	″	° ′	d h m	h m				°	°
χ Tauri	5.7	+5.85	+18.0	+25 23.5	7 14 0.2	+ 2 53.1	−0.0210	0.5447	+0.0647	+41	−21
118 Tauri	5.7	6.01	9.1	25 4.2	8 20 25.1	+ 8 16.5	+1.2523	0.5492	−0.0051	+90	+62
125 Tauri	6.0	6.06	7.5	25 50.5	9 1 8.7	−11 9.7	+0.3441	0.5491	0.0161	+64	+ 2
139 Tauri	5.3	6.07	+ 4.9	25 56.5	9 26.2	− 3 9.1	+0.0184	0.5484	0.0354	+43	−16
ϵ Geminorum	3.2	5.99	− 1.7	25 14.0	10 6 28.6	− 6 49.2	−0.4430	0.5445	0.0828	+17	−47
37 Geminorum	6.3	+5.98	− 3.4	+25 30.2	11 44.3	− 1 44.1	−1.2072	0.5430	−0.0941	−39	−64
ω Geminorum	5.7	5.92	4.2	24 21.6	15 3.8	+ 1 28.9	−0.2689	0.5419	0.1012	+27	−38
48 Geminorum	6.0	5.89	5.6	24 17.9	19 45.0	+ 6 0.7	−0.6973	0.5403	0.1109	+ 3	−65
δ Geminorum	3.5	5.79	6.4	22 10.2	23 24.0	+ 9 32.5	+1.2339	0.5391	0.1182	+90	+51
58 Geminorum	6.3	5.81	7.0	23 8.5	11 0 57.4	+11 3.0	−0.0249	0.5385	0.1213	+41	−27
85 Geminorum	6.0	+5.57	−10.8	+20 9.2	16 21.3	+ 1 57.0	+1.1675	0.5325	−0.1503	+90	+39
d^1 Cancri	6.0	5.40	14.0	18 39.5	12 5 51.4	− 8 58.5	+0.6163	0.5271	0.1731	+85	0
θ Cancri	5.7	5.35	15.0	18 26.3	9 54.9	− 5 2.6	+0.1420	0.5255	0.1794	+50	−25
δ Cancri	4.0	5.27	16.8	18 31.7	16 24.3	+ 1 14.8	−1.1508	0.5231	0.1890	−27	−71
54 Cancri	6.3	5.15	16.5	15 43.7	19 37.2	+ 4 21.7	+1.2873	0.5219	0.1935	+90	+47
o^1 Cancri	5.7	+5.13	−17.2	+15 42.8	22 43.8	+ 7 22.7	+0.6941	0.5208	−0.1977	+90	+ 1
o^2 Cancri	6.0	5.14	17.4	15 58.3	22 53.7	+ 7 32.3	+0.3795	0.5207	0.1979	+65	−15
π_1 Cancri	6.3	5.00	18.6	15 24.3	13 6 21.5	− 9 13.6	−0.5181	0.5184	0.2074	+14	−66
π_2 Cancri	6.0	5.02	19.0	15 21.8	7 49.3	− 7 48.3	−0.7770	0.5179	0.2092	0	−69
18 Leonis	6.0	4.75	21.1	12 16.7	23 47.6	+ 7 41.3	−0.9190	0.5139	0.2263	−10	−78
19 Leonis	7.0	+4.73	−21.1	+12 2.3	14 0 20.1	+ 8 12.8	−0.7837	0.5138	−0.2268	− 2	−78
43 Leonis	6.5	4.43	22.3	7 3.5	18 46.6	+ 2 6.6	+0.2327	0.5118	0.2416	+55	−29
34 Sextantis	6.7	4.26	22.4	4 6.9	15 4 57.4	+11 59.4	+0.8752	0.5119	0.2474	+90	+ 5
35[1] Sextantis	6.2	4.27	22.9	5 16.8	5 18.6	−11 40.1	−0.4501	0.5119	0.2476	+21	−68
ρ^1 Leonis	6.2	4.08	23.5	+ 2 30.5	17 29.8	+ 0 9.6	−0.5614	0.5136	0.2523	+13	−77
B. A. C. 4006	6.1	+3.82	−22.6	− 4 46.0	16 15 51.2	− 2 9.6	+1.3771	0.5210	−0.2543	+85	+48
η Virginis	5.7	3.60	22.1	8 53.4	17 12 41.6	− 5 58.5	+0.3859	0.5329	0.2474	+62	−22
69 Virginis	5.0	3.40	19.7	15 26.7	18 13 19.3	− 6 10.2	+1.1952	0.5529	0.2261	+75	+27
75 Virginis	6.0	3.39	19.8	14 50.3	15 42.5	− 3 52.0	+0.0446	0.5551	0.2232	+39	−40
83 Virginis	6.0	3.37	19.4	15 40.0	20 45.7	+ 1 0.5	−0.2310	0.5598	0.2165	+24	−55
85 Virginis	6.5	+3.38	−19.5	−15 15.3	21 14.2	+ 1 28.0	−0.7480	0.5603	−0.2158	− 4	−90
87 Virginis	5.8	3.38	19.0	17 21.1	22 0.3	+ 2 12.4	+1.1954	0.5611	0.2147	+73	+31
89 Virginis	5.4	3.35	18.9	17 37.6	23 3.7	+ 3 13.5	+1.2476	0.5621	0.2132	+72	+36
B. A. C. 4722	5.8	3.30	18.0	17 43.5	19 9 47.4	−10 26.5	−0.8493	0.5744	0.1961	−12	−90
B. A. C. 4923	7.3	3.32	17.4	20 57.2	20 2 26.2	+ 6 33.7	−0.6091	0.5894	0.1611	− 3	−85
42 Libræ	5.7	+3.22	−13.3	−23 29.2	18 52.7	− 2 40.2	−0.4120	0.6042	−0.1187	+ 4	−69
b Scorpii	5.3	3.23	12.6	25 26.5	22 48.3	+ 1 5.4	+1.0692	0.6073	0.1074	+65	+24
A[1] Scorpii	5.2	3.23	12.4	25 1.4	23 46.8	+ 2 1.5	+0.5538	0.6080	0.1045	+55	−11
B. A. C. 5253	5.8	3.23	12.4	24 13.8	23 53.9	+ 2 8.3	−0.2398	0.6081	0.1042	+11	−56
B. A. C. 5254	5.8	3.21	12.5	23 40.5	23 55.1	+ 2 9.5	−0.7880	0.6081	0.1041	−19	−90
3 Scorpii	6.7	+3.23	−12.3	−24 56.5	21 0 10.0	+ 2 23.6	+0.4357	0.6083	−0.1034	+48	−18
π Scorpii	6.3	3.23	12.2	25 49.2	1 41.4	+ 3 51.1	+1.1435	0.6098	0.0988	+64	+32
B. A. C. 5314	5.7	3.23	11.8	25 34.9	3 20.1	+ 5 25.6	+0.7488	0.6105	0.0939	+64	+ 1
B. A. C. 5347	6.0	3.25	11.3	26 3.2	5 3.6	+ 7 4.7	+1.0545	0.6116	0.0886	+64	+23
σ Scorpii	3.4	3.23	10.8	25 20.9	9 47.9	+11 36.7	−0.0226	0.6145	0.0738	+19	−43
α Scorpii	1.2	+3.24	−10.3	−26 12.4	12 44.3	− 9 34.6	+0.6155	0.6161	−0.0644	+57	− 7
22 Scorpii	5.5	3.22	10.3	24 53.5	13 2.7	− 9 17.1	−0.6936	0.6162	0.0635	−17	−90
25 Scorpii	7.0	3.24	9.0	25 20.6	18 58.7	− 3 36.6	+0.5695	0.6187	0.0441	−12	−83
31 Ophiuchi	6.7	3.24	7.9	25 30.0	22 1 18.7	+ 2 26.5	−0.6273	0.6205	0.0229	−17	−90
B. A. C. 5800	7.5	3.25	− 7.2	26 51.8	4 39.0	+ 5 38.0	+0.6455	0.6210	−0.0116	+56	− 5
				NEW	*MOON.*						
B. A. C. 6607	5.9	+3.26	+ 2.0	−22 35.6	24 2 16.8	+ 1 16.6	−0.6496	0.6020	+0.1332	− 8	−90
MERCURY				22 16.4	11 40.6	+10 17.2	+0.4004	0.5725	0.1440	+50	−20
σ Capricorni	5.6	3.27	7.1	19 26.3	25 1 16.2	− 0 39.2	−0.0669	0.5800	0.1872	+28	−46
π Capricorni	5.1	3.28	7.9	18 32.8	4 31.0	+ 2 28.2	−0.3376	0.5767	0.1934	+15	−62
ρ Capricorni	5.3	+3.27	+ 8.1	−18 9.1	5 9.4	+ 3 5.1	−0.6083	0.5760	+0.1946	+ 1	−84

ELEMENTS FOR THE PREDICTION OF OCCULTATIONS

DECEMBER

The Star's					At Conjunction in R. A.					Limiting Parallels	
Name	Mag.	Rel'ne from [illegible] Δα	Δδ	Apparent Declination	Washington Mean Time	Hour Angle H	Y	x'	y'	N	S
		°	°	° '	d h m	h m				°	°
B A C 7044	7 0	+3 29	+8 0	18 12 7	25 5 12 0	+3 8 6	[illegible]	[illegible]	+0 1947	+5	77
ο Capricorni	6 2	3 29	8 0	15 55 3	5 34 2	+3 29 0	+0 2411	[illegible]	0 1954	+46	29
π Capricorni	5 7	3 30	8 9	18 29 9	9 47 3	+7 32 6	[illegible]	[illegible]	0 2029	+70	6
B A C 7263	5 9	3 30	10 6	16 25 5	17 16 7	-9 14 5	[illegible]	[illegible]	0 2148	+43	34
29 Capricorni	5 7	3 32	12 1	15 35 8	26 1 9 0	1 59 0	[illegible]	[illegible]	0 2253	+74	+17
18 Aquarii	5 7	+3 31	+13 2	-13 19 0	4 55 2	+1 50 2	[illegible]	[illegible]	+0 2297	+16	66
λ Capricorni	5 7	3 34	15 2	11 50 2	15 4 7	+11 45 0	[illegible]	[illegible]	[illegible]	+66	-17
50 Capricorni	6 9	3 35	15 0	12 9 9	15 9 0	+11 52 2	[illegible]	[illegible]	0 2377	+78	+3
36 Aquarii	6 3	3 38	17 1	8 41 2	27 1 50 5	1 47 4	[illegible]	0 5144	0 2471	+34	-49
θ Aquarii	4 4	3 40	19 0	8 27 5	5 22 4	+1 37 7	[illegible]	[illegible]	[illegible]	+62	-24
ρ Aquarii	5 6	+3 41	+18 2	-8 20 0	6 59 9	+3 12 0	+0 7051	[illegible]	+0 2497	+82	0
B A C 7804	6 2	3 41	19 5	7 42 9	8 37 2	+4 46 3	[illegible]	0 5295	0 2503	+73	24
ι Aquarii	5 2	3 42	20 2	4 45 2	15 35 4	+11 31 4	[illegible]	0 5247	0 2525	+2	90
B A C 7951	6 7	3 46	20 5	-4 45 4	20 35 1	7 36 0	+0 5105	0 5216	0 2536	+73	15
ε Piscium	4 7	3 51	24 0	+0 41 9	28 16 24 3	+11 35 0	-0 1082	0 5130	0 2528	+33	51
9 Piscium	6 6	+3 61	+24 1	+0 33 8	16 34 2	+11 44 6	+0 0161	0 5129	+0 2527	+43	41
15 Piscium	6 6	3 65	24 6	0 45 0	20 49 2	-8 7 9	[illegible]	0 5115	0 2517	+90	+6
16 Piscium	5 8	3 65	24 9	1 32 2	21 17 8	7 40 1	[illegible]	0 5114	0 2519	+52	33
λ Piscium	4 5	3 68	24 8	1 13 2	29 0 13 8	-4 49 4	+1 2529	0 5106	[illegible]	+90	+32
19 Piscium	4 9	3 70	25 6	2 55 3	2 30 0	-2 38 1	[illegible]	0 5101	[illegible]	+42	41
22 Piscium	5 0	+3 71	+25 6	+2 21 9	5 22 7	+0 10 5	+1 3252	0 5094	[illegible]	+90	+41
d Piscium	5 1	3 85	27 8	7 37 6	20 21 1	-9 17 1	[illegible]	[illegible]	[illegible]	+0	70
45 Piscium	6 2	3 92	27 5	7 7 8	23 1 6	6 41 4	[illegible]	[illegible]	[illegible]	[illegible]	12
73 Piscium	6 0	4 21	[illegible]	12 24 7	30 20 21 2	9 57 0	[illegible]	[illegible]	[illegible]	[illegible]	52
ε Piscium	3 7	4 42	22 3	14 49 4	31 9 16 7	+2 31 7	[illegible]	[illegible]	[illegible]	+15	43
101 Piscium	6 3	+4 45	+20 3	+14 8 6	11 20 6	+4 43 7	[illegible]	[illegible]	+0 2040	+90	+24
103 Piscium	6 8	4 42	20 6	16 6 7	[illegible]	+6 25 7	[illegible]	0 5131	0 2018	+3	74
105 Piscium	6 1	4 42	20 5	15 55 5	[illegible]	[illegible]	[illegible]	0 5112	0 2016	+19	60
3 Arietis	6 2	[illegible]	22 5	16 54 3	17 0 2	+10 3 5	[illegible]	0 5142	[illegible]	-4	-73
4 Arietis	5 7	+4 55	+22 3	+16 [illegible]	17 49 3	+10 51 1	[illegible]	0 5145	[illegible]	+38	-45

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1897.

Date.	The Star's Name.	Mag.	Immersion. Washington. Sidereal Time.	Immersion. Washington. Mean Time.	Immersion. Angle from North Point.	Immersion. Angle from Vertex.	Emersion. Washington. Sidereal Time.	Emersion. Washington. Mean Time.	Emersion. Angle from North Point.	Emersion. Angle from Vertex.	Duration of Occultation.
			h m	h m	°	°	h m	h m	°	°	h m
Jan. 13	18 Tauri	6.3	2 15	6 42	67	113	3 46	8 12	251	245	1 30
18	δ Cancri	4.0	14 29	18 33	80	27	15 13	19 16	330	280	0 43
20	A Leonis *	4.7	2 19	6 16	85	38	3 5	7 3	315	266	0 47
21	d Leonis *	5.3	3 34	7 28	65	114	4 9	8 2	343	34	0 34
28	3 Sagittarii *	4–6	10 15	13 40	78	138	11 3	14 27	295	352	0 47
29	σ Sagittarii *	2.3	12 42	16 3	32	86	13 13	16 34	327	23	0 31
Feb. 13	B. A. C. 2363	7.3	9 31	11 52	85	29	10 36	12 57	320	261	1 5
14	7 Cancri	6.3	5 10	7 29	69	124	6 14	8 33	326	11	1 4
14	μ^2 Cancri	5.7	7 42	10 1	103	116	9 3	11 21	310	276	1 20
15	68 Cancri	7.5	7 11	9 26	108	148	8 31	10 45	311	324	1 19
15	π^2 Cancri ‡	6.0	15 31	17 44	138	87	16 17	18 30	273	224	0 46
16	21 Leonis	6.8	5 1	7 12	138	191	6 1	8 12	271	322	1 0
26	b^1 Sagittarii *	5–7	13 20	14 50	112	164	14 13	15 43	238	289	0 53
Mar. 14	35 Cancri	6.3	7 47	8 15	38	61	8 0	8 28	19	36	0 13
14	δ Cancri	4.0	13 28	13 55	82	27	14 15	14 42	332	278	0 47
15	18 Leonis *	6.0	17 38	18 1	79	35	18 16	18 39	327	286	0 38
15	19 Leonis *	7.0	18 3	18 25	107	65	18 47	19 10	298	261	0 45
22	π Scorpii *	3.4	8 28	8 25	185	244	8 38	8 35	208	266	0 10
22	B. A. C. 5347	6.0	11 31	11 27	72	118	12 20	12 17	328	8	0 50
23	43 Ophiuchi	5.8	17 8	16 59	71	72	18 27	18 18	289	274	1 19
25	ψ Sagittarii *	5.4	12 6	11 51	51	108	12 50	12 34	304	1	0 43
26	4 Capricorni †	6.1	14 51	14 31	88	139	15 57	15 37	248	293	1 6
29	67 Aquarii *	6.4	15 9	14 37	142	193	15 24	14 52	175	227	0 15
30	12 Piscium *	6.8	16 11	15 36	113	163	16 48	16 12	197	248	0 36
31	22 Piscium *	5.0	7 52	7 14	11	330	8 20	7 41	305	261	0 27
April 5	g Pleiadum	6.3	8 50	7 51	143	87	9 26	8 27	210	156	0 35
5	19 Tauri	5.0	8 49	7 51	94	38	9 52	8 53	259	205	1 3
5	21 Tauri	7.0	9 11	8 13	76	20	10 12	9 13	278	222	1 0
5	20 Tauri	5.0	9 13	8 14	121	65	10 3	9 5	233	178	0 51
5	22 Tauri	7.0	9 15	8 16	82	27	10 15	9 17	272	216	1 1
11	π^1 Cancri	6.3	13 49	12 26	163	109	14 32	13 9	255	202	0 43
11	π^2 Cancri	6.0	14 54	13 31	93	40	15 43	14 20	320	269	0 49
16	75 Virginis	6.0	10 28	8 46	108	142	11 32	9 50	321	346	1 4
18	b Scorpii	5.3	17 57	16 6	45	18	18 41	16 49	331	297	0 43
21	σ Sagittarii *	2.3	12 29	10 28	142	198	13 4	11 2	217	269	0 34
May 3	χ Tauri	5.7	10 5	7 17	108	53	11 4	8 15	265	215	0 58
8	δ Cancri	4.0	8 5	4 58	78	95	9 8	6 0	344	323	1 2
16	B. A. C. 5314 *	5.7	8 55	5 16	113	171	9 44	6 4	280	335	0 48
16	B. A. C. 5347 †	6.0	10 46	7 6	143	193	11 31	7 51	254	300	0 45
June 1	139 Tauri	5.3	12 42	7 59	118	68	13 32	8 49	263	218	0 50
6	43 Leonis *	6.5	18 13	13 9	153	103	18 50	13 46	255	212	0 37
12	b Scorpii	5.3	19 0	13 32	66	30	19 58	14 30	304	260	0 58
12	π Scorpii *	3.4	22 15	16 47	126	70	22 57	17 29	237	179	0 42
17	21 Capricorni *	6.4	14 42	8 56	96	149	15 37	9 51	233	283	0 55
17	θ Capricorni	4.1	17 17	11 31	118	159	18 4	12 17	196	231	0 46
July 6	υ Virginis *	5.7	18 31	11 29	41	350	18 49	11 47	3	311	0 18
16	B. A. C. 7774 *	6.4	14 25	6 45	54	105	15 15	7 34	266	313	0 49
18	22 Piscium *	5.0	15 51	8 2	26	73	16 29	8 41	287	336	0 39
22	ε Arietis *	4.6	17 36	9 32	129	161	18 3	9 58	198	234	0 26
26	ε Geminorum	3.2	23 30	15 9	71	119	24 22	16 2	288	340	0 53

NOTE.—The angles of position are counted from the north point and vertex of the moon's limb, toward the east.
* Whole occultation below the horizon of Washington † Immersion below the horizon of Washington.
‡ Emersion below the horizon of Washington.

OCCULTATIONS VISIBLE AT WASHINGTON DURING THE YEAR 1897.

Date		The Star's Name	Mag.	Immersion: Washington Sidereal Time	Immersion: Washington Mean Time	Immersion: Angle from North Point	Immersion: Angle from Vertex	Emersion: Washington Sidereal Time	Emersion: Washington Mean Time	Emersion: Angle from North Point	Emersion: Angle from Vertex	Duration of Occultation
				h m	h m	°	°	h m	h m	°	°	h m
Aug.	6	4 Scorpii	6.3	14 14	5 21	140	160	15 21	6 17	257	263	1 6
	6	ν Scorpii	5.4	16 1	7 0	54	32	16 58	7 54	330	316	0 54
	6	B A C 5347 *	6.0	20 40	11 45	96	8	21 38	12 34	305	253	0 49
	8	B A C 6194	5.1	21 35	12 21	49	52	22 35	13 21	340	194	1 2
	9	ψ Sagittarii	5.4	18 41	9 26	119	125	19 36	10 21	205	199	0 55
	9	χ¹ Sagittarii *	5.6	0 14	14 57	40	351	1 3	15 47	277	225	0 50
	14	λ Piscium	4.5	21 38	12 23	42	67	23 18	13 43	258	266	1 21
	19	f Pleiadum	6.3	1 6	15 10	113	169	2 6	16 10	202	249	1 0
	19	19 Tauri	5.0	1 29	15 24	78	133	2 46	16 50	238	272	1 26
	19	21 Tauri	7.0	1 30	15 35	74	125	3 20	17 25	246	260	1 50
	19	20 Tauri	5.0	1 52	15 55	119	169	2 49	16 53	199	232	0 58
	19	22 Tauri	7.0	1 54	15 58	83	132	3 23	17 27	236	249	1 28
Sept.	2	δ Scorpii *	5.3	21 19	10 28	100	48	22 14	11 23	264	208	0 55
	4	3 Sagittarii	4.6	16 15	5 18	135	152	17 14	6 17	226	231	0 59
	18	139 Tauri	5.3	23 9	11 17	100	130	24 5	12 12	248	303	0 55
	19	ω Geminorum	5.7	5 23	17 25	190	198	6 25	18 27	234	296	1 2
Oct.	3	53 Sagittarii	6.7	20 47	7 55	93	77	21 54	9 2	217	189	1 7
	6	B A C 7774	6.4	20 20	7 16	74	100	21 37	8 33	213	222	1 17
	8	22 Piscium	5.0	22 24	9 1	60	87	23 36	10 24	221	224	1 22
	12	ε Arietis	4.6	21 34	8 7	82	137	22 36	9 8	228	284	1 1
	13	23 Tauri †	4.7	20 19	6 48	37	84	21 2	7 31	288	339	0 43
	13	26 Tauri	7.0	21 16	7 45	101	153	22 7	8 35	221	276	0 50
	13	27 Tauri	4.0	21 25	7 55	60	112	22 23	8 52	261	317	0 57
	13	28 Tauri	6.2	21 30	7 59	41	93	22 21	8 52	281	337	0 51
	15	125 Tauri	6.0	0 13	10 33	129	186	1 16	11 36	214	273	1 3
	17	58 Geminorum	6.3	23 58	10 10	82	129	24 53	11 5	286	338	0 55
	27	ν Scorpii	5.4	18 31	4 5	157	125	19 5	4 39	214	178	0 34
	27	B A C 5514 ‡	5.7	20 13	5 48	81	37	21 14	6 47	292	230	0 59
	28	B A C 5800 *	7.3	22 8	7 38	62	13	23 1	8 31	283	233	0 53
Nov.	1	29 Capricorni	5.7	23 17	8 30	73	46	24 25	9 38	221	182	1 5
	5	45 Piscium	6.9	1 43	10 40	3	315	2 37	11 34	284	245	0 54
	8	ρ Arietis	6.0	21 52	6 38	128	184	22 21	7 7	179	235	0 29
	9	66 Arietis †	6.0	20 1	4 44	86	133	20 53	5 36	237	289	0 52
	9	23 Tauri	4.7	7 13	15 54	143	85	7 53	16 34	208	150	0 40
	9	η Tauri	3.2	7 40	16 19	103	45	8 48	17 28	250	193	1 9
	9	27 Tauri	4.0	8 30	17 10	121	64	9 33	18 14	235	181	0 54
	9	28 Tauri	6.2	8 35	17 16	100	43	9 39	18 19	246	202	1 3
	15	σ Cancri	6.0	8 5	16 22	175	197	8 55	17 12	245	245	0 50
	17	43 Leonis *	6.3	2 4	10 14	133	178	2 50	11 0	267	316	0 46
	29	50 Capricorni	6.9	22 22	5 46	59	49	23 39	7 3	229	152	1 17
	30	B A C 7931 *	6.-	6 4	13 23	83	33	6 51	14 10	290	183	0 47
Dec.	5	26 Arietis	[illegible]	0 48	7 48	40	82	2 10	9 10	300	268	1 22
	12	θ Cancri	5.7	1 32	8 4	50	99	2 7	8 40	334	26	0 36
	17	[illegible] Virginis *	5.7	4 51	11 5	145	[illegible]	5 34	11 46	264	316	0 43
	18	75 Virginis †	6.0	7 40	13 56	48	99	8 8	14 25	8	58	0 19
	21	B A C [illegible] *	5.-	22 26	4 33	118	63	23 1	4 58	243	186	0 45
	22	B A C [illegible] *	7.3	23 38	5 31	117	60	24 18	6 11	[illegible]	172	0 40
	23	[illegible] Capricorni ‡	6.2	0 36	6 37	29	348	1 42	7 23	[illegible]	227	0 46
	27	θ Aquarii	4.4	0 22	5 54	30	0	1 27	7 0	255	218	1 6
	27	B A C 7804 *	6.2	4 12	9 45	136	85	4 27	10 0	170	118	0 15

NOTE.—The angles of position are counted from the north point and vertex of the moon's limb toward the east.

* Whole occultation below the horizon of Washington. † Immersion below the horizon of Washington.

‡ Emersion below the horizon of Washington.

DOWNES'S TABLE GIVING VALUES OF τ.

FOR COMPUTING THE TIME AND HOUR-ANGLE OF APPARENT CONJUNCTION.

h	Lat. 72°			Lat. 66°			Lat. 60°			Lat. 54°			Lat. 48°			Lat. 42°			Lat. 36°		
	x'			x'			x'			x'			x'			x'			x'		
	.62	.56	.50	.62	.56	.50	.62	.56	.50	.62	.56	.50	.62	.56	.50	.62	.56	.50	.62	.56	.50
h m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	2	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	6	5	6	7
20	3	3	4	4	5	5	5	6	7	6	7	9	8	9	11	9	10	12	11	12	14
30	5	5	6	6	7	8	8	9	11	10	11	13	12	13	16	14	16	18	16	18	22
40	6	7	8	8	9	11	11	12	14	13	15	17	16	18	21	18	21	24	21	24	29
50	7	8	10	10	11	13	13	15	17	16	19	21	19	22	26	22	26	30	26	30	36
1 0	9	10	11	12	14	16	16	18	21	19	22	26	23	26	31	26	31	36	30	35	42
10	10	12	13	14	16	18	18	21	24	22	26	30	26	30	36	31	35	42	35	40	48
20	12	13	15	16	18	21	21	23	27	25	29	34	30	34	40	35	40	47	39	45	54
30	13	15	17	18	20	23	23	26	30	28	32	37	33	38	45	39	44	52	43	50	59
40	14	16	18	20	22	25	25	29	33	31	35	41	36	42	49	42	48	57	47	54	64
50	16	18	20	21	24	28	27	31	36	34	38	44	39	45	53	45	52	61	51	58	68
2 0	17	19	22	23	26	30	29	33	39	36	41	47	42	48	56	48	55	65	54	62	72
10	18	20	23	25	28	32	31	36	41	38	43	50	45	51	59	51	59	68	57	66	76
20	19	22	24	26	30	34	33	38	43	40	46	53	47	54	62	54	62	71	60	69	80
30	20	23	26	28	31	36	35	40	45	42	48	55	50	56	65	57	64	74	63	72	83
40	21	24	27	29	33	37	37	42	47	44	50	58	52	59	68	59	67	77	65	74	86
50	22	25	28	30	34	39	38	43	49	46	52	60	54	61	70	61	69	79	68	76	88
3 0	23	26	30	31	35	40	40	45	51	48	54	62	56	63	72	63	71	81	70	79	90
10	24	27	31	33	36	42	41	46	53	49	56	63	57	65	74	65	73	83	72	81	92
20	25	28	32	34	38	43	42	47	54	51	57	65	59	66	75	66	74	85	73	82	93
30	26	29	33	35	39	44	43	49	55	52	58	66	60	67	77	68	76	86	74	83	95
40	26	29	33	36	40	45	44	50	56	53	59	67	61	69	78	69	77	87	75	84	96
50	27	30	34	36	41	46	45	51	57	54	60	68	62	70	79	70	78	88	76	85	96
4 0	28	31	35	37	41	47	46	52	58	55	61	69	63	70	79	71	79	89	77	86	97
10	28	31	35	38	42	47	47	52	59	56	62	70	64	71	80	71	79	89	78	86	97
20	29	32	36	38	42	48	47	53	59	56	62	70	64	71	80	72	80	89	78	87	97
30	29	32	36	39	43	48	48	53	60	57	63	71	65	72	81	72	80	90	79	87	97
40	29	33	37	39	43	49	48	53	60	57	63	71	65	72	81	72	80	89	79	87	97
50	30	33	37	39	44	49	48	54	60	57	63	71	65	72	81	72	80	89	79	87	96
5 0	30	33	37	39	44	49	49	54	60	57	63	71	65	72	80	72	80	89	78	86	95
10	30	33	37	40	44	49	49	54	60	57	63	71	65	72	80	72	79	88	78	86	95
20	30	33	37	40	44	49	49	54	60	57	63	71	65	71.	79	72	79	88	78	85	94
30	30	33	37	40	44	49	49	54	60	57	63	70	64	71	79	71	78	87	77	85	93
40	30	33	37	39	44	49	48	53	59	56	62	70	64	70	78	70	77	86	76	84	91
50	30	33	37	39	43	48	48	53	59	56	61	69	63	70	77	70	77	85	75	83	90
6 0	30	33	37	39	43	48	48	52	58	55	61	68	63	69	76	69	76	84	74	82	89
10	30	33	37	39	43	47	47	52	58	55	60	67	62	68	75	68	75	82	73	80	87
20	29	32	36	38	42	47	47	51	57	54	60	66	61	67	74	67	73	81	72	79	85
30	29	32	36	38	42	46	46	51	56	53	59	65	60	66	73	66	72	80	71	78	84
40	29	32	35	37	41	46	45	50	55	53	58	64	59	65	71	65	71	78	70	76	82
50	28	31	35	37	40	45	45	49	54	52	57	62	58	63	70	63	69	76	68	74	80
7 0	28	31	34	36	40	44	44	48	53	51	55	61	57	62	68	62	68	75	67	73	78
10	27	30	34	35	39	43	43	47	52	50	54	60	56	61	67	61	66	73	65	71	76
20	27	30	33	35	38	42	42	46	51	48	53	58	54	59	65	59	65	71	64	68	74
30	26	29	32	34	37	41	41	45	49	47	52	57	53	58	63	58	63	69	62	67	71
40	26	28	31	33	36	40	40	44	48	46	50	55	51	56	62	56	61	67			
50	25	27	31	32	35	39	39	42	47	45	49	53	50	54	60	54	59	65			
8 0	24	27	30	31	34	38	38	41	45	43	47	52	48	52	58	53	57	63			
10	24	26	29	30	33	37	36	40	44	42	46	50	47	51	56	52	55	60			
20	23	25	28	29	32	35	35	38	42	40	44	48	45	49	54						
30	22	24	27	28	31	34	34	37	41	39	42	46	43	47	52						
40	21	23	26	27	30	33	33	35	39	37	41	44	41	45	49						
50	20	22	25	26	28	31	31	34	37	36	39	42	40	43	47						
9 0	19	21	24	25	27	30	30	32	35	34	37	40									
10	18	20	22	24	26	28	28	31	34	32	35	38									
20	18	19	21	22	24	27	27	29	32	31	33	36									
30	16	18	20	21	23	25	25	27	30	29	31	34									
40	15	17	19	20	22	24	24	26	28	27	29	32									

(*Concluded at bottom of next page.*)

DOWNES'S TABLE GIVING VALUES OF r.

FOR COMPUTING THE TIME AND HOUR-ANGLE OF APPARENT CONJUNCTION.

h		Lat 30°			Lat 24°			Lat 18°			Lat 12°			Lat 6°			Lat 0°		
		π'			π'			π'			π'			π'			π'		
		62	56	50	62	56	50	62	56	50	62	56	50	62	56	50	62	56	50
h	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	6	7	8	7	7	9	7	8	9	7	8	10	7	8	10	8	9	11
	20	12	14	16	13	14	18	14	16	19	14	16	20	14	17	21	15	18	21
	30	17	20	24	19	22	27	20	24	29	21	25	30	21	25	31	22	26	32
	40	23	27	32	25	29	36	26	32	39	28	33	40	28	34	41	29	34	42
	50	28	33	40	31	36	44	32	39	48	35	40	50	35	42	51	35	42	52
1	0	33	39	47	36	42	52	38	46	56	40	47	59	41	49	60	41	49	61
	10	38	45	54	41	48	59	44	52	63	46	54	67	47	56	68	47	56	69
	20	43	50	60	46	54	65	49	58	70	52	60	74	53	62	75	53	63	76
	30	48	55	66	51	60	71	54	64	76	57	66	79	58	68	81	59	69	82
	40	52	60	71	56	65	77	59	69	82	62	72	84	63	73	87	64	74	88
	50	56	64	76	60	69	82	64	74	87	66	77	89	68	78	92	68	79	93
2	0	59	68	80	64	73	86	68	78	91	70	81	95	72	83	97	72	83	98
	10	62	72	84	67	77	90	71	81	95	74	85	99	75	87	101	76	87	102
	20	65	75	87	70	81	94	74	85	99	77	88	103	78	90	105	79	92	106
	30	68	78	90	73	84	97	77	88	102	80	91	106	81	93	108	82	94	109
	40	71	81	93	76	87	100	80	91	105	83	94	109	84	96	111	85	97	112
	50	74	83	96	78	89	102	82	93	107	85	96	111	87	98	113	87	99	114
3	0	76	85	98	80	92	104	84	95	109	87	98	113	89	100	115	89	101	116
	10	77	87	99	82	92	106	86	97	111	89	100	114	91	102	116	91	103	117
	20	79	89	101	84	94	107	88	99	112	91	102	115	92	104	118	93	104	118
	30	80	90	102	85	95	108	89	100	113	92	103	116	94	105	119	94	105	119
	40	81	91	103	86	96	109	90	101	114	93	104	117	95	106	119	95	106	120
	50	82	92	104	87	97	110	91	102	114	94	104	118	95	106	120	96	107	120
4	0	83	92	104	88	98	110	92	102	114	94	105	118	96	107	120	97	107	120
	10	84	93	104	88	98	110	92	102	114	95	105	118	96	107	120	97	107	120
	20	84	93	104	89	98	110	92	102	114	95	105	117	96	107	119	97	107	120
	30	84	93	104	89	98	110	92	102	114	95	105	117	96	107	119	97	107	119
	40	84	93	104	89	98	109	92	102	113	95	104	116	96	106	118	97	107	119
	50	84	93	103	88	97	108	92	101	113	94	104	115	96	106	117	96	106	118
5	0	84	92	102	88	97	108	91	101	112	94	103	114	95	105	116	96	105	117
	10	83	92	102	88	96	107	91	100	110	93	102	113	95	104	115	95	104	115
	20	83	91	101	87	95	106	90	99	109	92	101	112	94	103	114	94	103	114
	30	82	90	100	86	94	104	89	98	108	92	100	111	93	102	112	93	102	113
	40	81	89	98	85	93	103	88	97	106	91	99	109	92	100	110			
	50	80	88	97	84	92	101	87	95	105	89	97	107						
6	0	79	87	95	83	91	100	86	94	103	88	96	105						
	10	78	85	94	82	89	98	84	92	101									
	20	77	84	92	80	88	96	82	91	99									
	30	75	82	90	79	86	94												
	40	74	81	88	77	84	92												
	50	72	79	86															
7	0	71	[illegible]	84															

(Continued from preceding page.)

h		Lat 72°			Lat 66°			Lat 60°		
		π'			π'			π'		
		62	56	50	62	56	50	62	56	50
h	m	m	m	m	m	m	m	m	m	m
9	50	14	16	18	18	20	22	22	24	26
10	0	13	15	16	17	19	21	21	22	24
	10	12	14	15	16	17	19	19	21	22
	20	11	12	14	15	16	17	17	19	20
	30	10	11	12	13	14	16	16	17	18
	40	9	10	11	12	13	14	14	15	16
	50	8	9	10	10	11	12	12	13	14
11	0	7	8	8	9	10	11	10	11	12
	10	6	6	7	7	8	9	9	9	10
	20	5	5	6	6	6	7	7	8	8
	30	3	4	4	4	5	5			
	40	2	3	3	3	3	4			
	50	1	1	1	1	2	2			
12	0	0	0	0	0	0	0			

FOR WASHINGTON MEAN NOON.

Date.		*k*	*i*	*θ*	*L*	Date.		*k*	*i*	*θ*	*L*
			°	°					°	°	
Jan.	1	0.746	60.6	352.6	65.4	July	5	0.872	41.9	180.7	65.9
	6	0.583	80.5	348.1	63.1		10	0.963	22.1	194.0	67.0
	11	0.380	107.4	343.4	56.0		15	0.998	4.9	270.9	61.9
	16	0.129	137.9	336.0	28.1		20	0.977	17.4	355.7	52.7
	21	0.010	168.4	289.4	2.5		25	0.928	31.0	7.6	44.2
	26	0.063	151.0	189.9	12.5		30	0.871	42.1	13.8	37.9
	31	0.212	125.2	179.6	32.5	Aug.	4	0.813	51.2	18.0	33.9
Feb.	5	0.349	107.6	175.3	37.6		9	0.762	58.3	21.1	31.9
	10	0.473	90.8	171.6	37.0		14	0.698	66.6	23.6	30.6
	15	0.590	79.6	168.1	35.4		19	0.637	74.1	25.5	30.6
	20	0.667	70.5	164.5	32.4		24	0.570	82.0	27.1	31.5
	25	0.728	62.8	161.1	30.3		29	0.491	91.1	28.7	32.6
Mar.	2	0.780	56.0	157.6	29.1	Sept.	3	0.395	102.1	30.5	33.2
	7	0.825	49.4	154.4	29.1		8	0.281	116.0	32.9	31.0
	12	0.868	42.7	151.4	29.3		13	0.153	134.0	37.2	22.6
	17	0.908	35.3	148.2	32.8		18	0.052	153.7	48.4	9.7
	22	0.948	26.4	145.2	37.2		23	0.008	169.7	158.4	1.7
	27	0.981	15.7	139.7	43.9		28	0.107	141.7	199.5	21.7
Apr.	1	0.999	3.4	88.7	53.1	Oct.	3	0.318	111.3	205.9	52.3
	6	0.981	15.7	341.4	66.1		8	0.556	83.5	208.5	66.6
	11	0.916	33.7	336.4	70.6		13	0.755	59.3	210.2	63.4
	16	0.766	57.8	336.4	68.0		18	0.873	41.7	211.1	52.1
	21	0.598	78.7	337.2	59.1		23	0.943	27.6	211.1	42.1
	26	0.434	97.6	339.2	47.1		28	0.979	16.7	210.8	34.6
May	1	0.283	115.7	341.0	34.5	Nov.	2	0.996	7.2	210.1	29.7
	6	0.170	131.3	342.2	23.5		7	1.000	0.8	200.4	26.6
	11	0.077	147.7	343.8	12.0		12	0.997	5.8	23.6	24.9
	16	0.018	164.5	348.6	3.1		17	0.989	11.7	21.7	24.4
	21	0.001	176.7	100.4	0.1		22	0.976	17.8	19.0	25.1
	26	0.027	161.2	148.2	4.3		27	0.955	24.4	15.3	26.8
	31	0.081	145.8	153.0	11.7	Dec.	2	0.926	31.7	11.5	30.0
June	5	0.166	131.8	155.1	21.1		7	0.881	40.4	7.3	35.0
	10	0.260	118.8	157.6	28.5		12	0.812	51.4	3.0	42.2
	15	0.362	106.1	160.3	35.0		17	0.705	65.8	358.7	51.4
	20	0.470	92.8	163.8	41.3		22	0.543	85.0	354.6	59.0
	25	0.602	78.2	168.2	49.7		27	0.323	110.7	350.4	53.0
	30	0.737	61.7	173.8	58.2		32	0.101	143.0	343.4	22.9
	35	0.872	41.9	180.7	65.9						

NOTATION.

k, the ratio of the illuminated portion of the apparent disk to the entire apparent disk considered as the superfices of a circle.

i, the angle between the sun and earth, as seen from the planet.

θ, the angle which the line joining the cusps, or extremities of the illuminated portion, makes with the meridian.

L, the brilliancy of the disk. The unit of *L* is the amount of light received by an eye from a circular disk with the same albedo as the planet, subtending an angular radius of one second of arc, situated at distance unity from the sun, and illuminated by the latter as the mean disk of the planet is illuminated.

FOR WASHINGTON MEAN NOON.

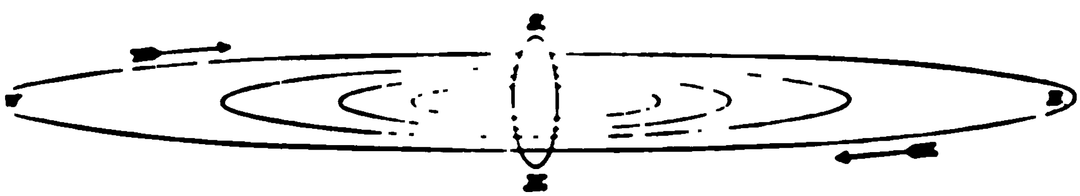
Date.		*k*	*i*	*θ*	*L*	Date.		*k*	*i*	*θ*	*L*
			°	°					°	°	
Jan.	1	0.706	65.6	342.5	93.5	May	26	0.190	128.3	158.5	174.5
	6	0.691	67.5	341.0	98.1		31	0.236	121.8	158.1	181.1
	11	0.671	70.0	339.7	102.4	June	5	0.279	116.2	158.1	184.5
	16	0.653	72.2	338.6	107.6		10	0.319	111.2	158.4	180.5
	21	0.634	74.5	337.7	113.0		15	0.357	106.5	159.1	174.0
	26	0.613	77.0	337.0	119.0		20	0.392	102.5	160.0	165.8
	31	0.591	79.5	336.5	125.5		25	0.425	98.6	161.1	157.2
Feb	5	0.569	82.1	336.1	132.5		30	0.456	95.1	162.6	148.6
	10	0.544	84.9	335.8	140.1	July	5	0.485	91.7	164.1	140.6
	15	0.519	87.9	335.7	148.2		10	0.513	88.5	165.8	132.8
	20	0.492	91.0	335.6	156.8		15	0.538	85.6	167.8	125.4
	25	0.463	94.3	335.6	165.9		20	0.563	82.8	169.9	118.7
Mar	2	0.432	97.8	335.7	175.1		25	0.586	80.0	172.2	112.7
	7	0.399	101.7	335.8	184.2		30	0.609	77.4	174.6	107.2
	12	0.363	105.9	335.8	192.9	Aug.	4	0.630	74.9	177.1	102.1
	17	0.325	110.5	335.7	200.2		9	0.651	72.4	179.7	97.6
	22	0.284	115.6	335.3	202.0		14	0.671	70.0	182.3	93.4
	27	0.239	121.4	334.6	199.0		19	0.690	67.6	184.9	89.6
Apr	1	0.193	127.8	333.3	187.9		24	0.709	65.3	187.6	86.6
	3	0.174	130.6	332.7	180.7		29	0.727	63.1	190.1	83.0
	5	0.155	133.6	331.9	171.1	Sept.	3	0.744	60.8	192.5	80.2
	7	0.137	136.7	330.9	159.8		8	0.760	58.6	194.9	77.5
	9	0.118	139.9	329.7	145.9		13	0.776	56.5	197.1	75.0
	11	0.099	143.3	328.2	130.3		18	0.792	54.3	199.1	72.8
	13	0.082	146.8	326.4	113.1		23	0.806	52.2	200.9	70.7
	15	0.065	150.5	324.3	94.2		28	0.820	50.1	202.4	68.7
	17	0.050	154.3	321.5	75.2	Oct.	3	0.834	48.1	203.7	67.0
	19	0.036	158.2	317.8	56.5		8	0.847	46.0	204.8	65.3
	21	0.025	161.9	313.5	40.3		13	0.860	44.0	205.6	63.7
	23	0.015	165.8	304.9	25.0		18	0.872	42.0	206.1	62.2
	25	0.009	169.4	291.9	14.5		23	0.883	40.0	206.4	60.9
	27	0.005	172.2	268.3	7.9		28	0.894	38.1	206.4	59.6
	29	0.004	172.8	233.6	6.8	Nov.	2	0.903	36.2	206.1	58.4
May	1	0.006	171.0	204.5	10.5		7	0.913	34.3	205.5	57.3
	3	0.011	167.7	187.9	18.9		12	0.922	32.5	204.6	56.2
	5	0.019	164.0	178.4	31.1		17	0.930	30.6	203.5	55.3
	7	0.030	160.2	172.5	46.3		22	0.938	28.8	202.0	54.3
	9	0.042	156.1	168.7	63.5		27	0.946	27.0	200.2	53.5
	11	0.056	152.5	165.9	81.1	Dec	2	0.953	25.2	198.1	52.6
	13	0.071	148.8	163.9	99.1		7	0.959	23.5	195.7	51.9
	15	0.089	145.2	162.4	115.7		12	0.965	21.7	193.1	51.2
	17	0.107	141.8	161.2	130.6		17	0.970	20.0	190.1	50.6
	19	0.125	138.6	160.3	143.8		22	0.975	18.3	186.9	50.0
	21	0.144	135.4	159.6	155.0		27	0.979	16.6	183.3	49.4
	26	0.190	128.3	158.5	174.5		32	0.983	14.9	179.7	49.0

MARS not being in opposition during the year 1897, the satellites will not be visible.

APPARENT DISK OF MARS, 1897.

January	1,	0.978
January	31,	0.926
March	2,	0.901
April	1,	0.900
May	1,	0.912
May	31,	0.929
June	30,	0.948
July	30,	0.965
August	29,	0.981
September	28,	0.992
October	28,	0.999
November	27,	1.000
December	27,	0.997

The numbers in this table are the versed sines of the illuminated disk, the apparent diameter of the planet being taken as unity.



APPARENT ORBITS OF THE SATELLITES OF JUPITER IN 1897,
AS SEEN IN AN INVERTING TELESCOPE.

(The vertical scale for the planet is three times and for the orbits five times the horizontal one.)

The object of this figure is to facilitate the identification of the satellites in cases where the diagrams of configurations do not suffice for that purpose: reference to the above diagram enables one to identify the inner and outer satellite of the pair. The central, vertical ellipse represents the disk of Jupiter, elongated three times in the vertical direction.

Facing each page of the phenomena of Jupiter's satellites, pages 462-482, is the page of diagrams of configurations, for the same month. The light disks ○ in the vertical row in the middle of the page represent the relative position of Jupiter each day. The dots adjacent in the same horizontal space represent the positions of the several satellites on the same day, at the hour and minute of Washington mean time indicated above the diagrams. The latitudes of the satellites are always considered zero in constructing the diagrams, except where two or more satellites chance to be at nearly the same distance from the planet, when they are placed one above the other according to their apparent latitudes. The numerals designating the satellites are placed on the right or left hand side of the dot, according as the motion of the satellite, for the time of the configuration, is toward the east or toward the west—the motion being always toward the numeral. Frequently, at the epoch of the configuration, one or more satellites will be invisible, being projected on the disk of the planet: this phenomenon is indicated by a light disk ○ at the left hand side of the page. Frequently, also, one or more satellites will be invisible, being concealed in occultation behind the disk, or eclipsed in the shadow of the planet: this phenomenon is indicated by a dark disk ● at the right hand side of the page. In both cases, the annexed numeral serves to point out which satellite is thus rendered invisible.

When an observation is made at a different hour from that for which the diagram is constructed, the motion of the satellite during the interval may be judged by transferring its given position to the above diagram, and estimating its motion during the elapsed interval on the above diagrams of the orbits, by means of the following table of the periods:—

MEAN SYNODIC PERIODS OF THE SATELLITES

	d	h	m	s		d			d	h	m	s		d
I.	1	18	28	35.945	=	1.76986048		III.	7	3	59	35.854	=	7.16638720
II.	3	13	17	53.735	=	3.55409416		IV.	16	18	5	6.928	=	16.75355241

WASHINGTON MEAN TIME OF SUPERIOR GEOCENTRIC CONJUNCTION.

SATELLITE I.

		h m			h m			h m			h m
Jan.	1	13 44.0	March	20	8 55.0	June	6	5 20.7	Oct.	18	19 28.3
	3	8 10.9		22	3 21.3		7	23 50.0		20	13 58.3
	5	2 37.7		23	21 47.8		9	18 19.4		22	8 28.3
	6	21 4.6		25	16 14.3		11	12 48.8		24	2 58.2
	8	15 31.2		27	10 40.8		13	7 18.2		25	21 28.1
	10	9 58.0		29	5 7.4		15	1 47.7		27	15 58.1
	12	4 24.7		30	23 34.2		16	20 17.3		29	10 28.0
	13	22 51.2	April	1	18 0.8		18	14 46.8		31	4 57.8
	15	17 17.6		3	12 27.7		20	9 16.4	Nov.	1	23 27.7
	17	11 44.1		5	6 54.7		22	3 46.0		3	17 57.4
	19	6 10.5		7	1 21.7		23	22 15.7		5	12 27.1
	21	0 36.7		8	19 48.7		25	16 45.4		7	6 56.9
	22	19 3.0		10	14 15.8		27	11 15.2		9	1 26.6
	24	13 29.3		12	8 43.0		29	5 44.9		10	19 56.2
	26	7 55.4		14	3 10.3	July	1	0 14.8		12	14 25.9
	28	2 21.5		15	21 37.6		2	18 44.5		14	8 55.4
	29	20 47.6		17	16 5.1		4	13 14.6		16	3 24.9
	31	15 13.6		19	10 32.5		6	7 44.3		17	21 54.3
Feb.	2	9 39.6		21	5 0.1		8	2 14.3		19	16 23.8
	4	4 5.6		22	23 27.7		9	20 44.2		21	10 53.3
	5	22 31.6		24	17 55.5		11	15 14.3		23	5 22.6
	7	16 57.6		26	12 23.3		13	9 44.2		24	23 52.0
	9	11 23.5		28	6 51.2		15	4 14.3		26	18 21.2
	11	5 49.4		30	1 19.1		16	22 44.4		28	12 50.5
	13	0 15.2	May	1	19 47.1		18	17 14.5		30	7 19.7
	14	18 41.0		3	14 15.1		20	11 44.5	Dec.	2	1 48.9
	16	13 6.9		5	8 43.2		22	6 14.8		3	20 18.0
	18	7 32.7		7	3 11.4		24	0 44.9		5	14 46.9
	20	1 58.5		8	21 39.7		25	19 15.2		7	9 16.0
	21	20 24.4		10	16 8.1		27	13 45.3		9	3 44.9
	23	14 50.2		12	10 36.5		29	8 15.7		10	22 13.9
	25	9 16.0		14	5 4.9		31	2 45.8		12	16 42.7
	27	3 41.8		15	23 33.5	Aug.	1	21 16.1		14	11 11.5
	28	22 7.7		17	18 2.2		3	15 46.3		16	5 40.1
March	2	16 33.6		19	12 30.9		5	10 16.4		18	0 8.8
	4	10 59.6		21	6 59.7		7	4 46.7		19	18 37.4
	6	5 25.6		23	1 28.5		8	23 17.0		21	13 6.1
	7	23 51.5		24	19 57.2		10	17 47.3		23	7 34.5
	9	18 17.6		26	14 26.3		12	12 17.7		25	2 2.9
	11	12 43.7		28	8 55.2		14	6 47.9		26	20 31.2
	13	7 9.9		30	3 24.2	Oct.	13	11 58.1		28	14 59.6
	15	1 36.1		31	21 53.2		15	6 28.1		30	9 27.9
	16	20 2.4	June	2	16 22.3		17	0 58.1			
	18	14 28.7		4	10 51.5						

WASHINGTON MEAN TIME OF SUPERIOR GEOCENTRIC CONJUNCTION.

SATELLITE II.

		h m			h m			h m			h m
Jan.	1	15 36.0	March	20	16 52.0	June	6	20 10.4	Oct	20	0 36.1
	5	4 48.6		24	6 1.7		10	9 30.1		23	13 59.2
	8	18 0.0		27	19 11.0		13	22 50.0		27	3 22.2
	12	7 11.9		31	8 21.5		17	12 10.4		30	16 45.1
	15	20 22.2	April	3	21 32.0		21	1 30.9	Nov.	3	6 8.0
	19	9 32.8		7	10 43.3		24	14 51.8		6	19 30.5
	22	22 42.1		10	23 54.8		28	4 13.0		10	8 53.0
	26	11 51.9		14	13 7.2	July	1	17 34.4		13	22 15.2
	30	1 0.4		18	2 19.6		5	6 56.0		17	11 37.5
Feb.	2	14 9.3		21	15 33.1		8	20 17.9		21	0 59.0
	6	3 16.9		25	4 46.7		12	9 40.0		24	14 20.6
	9	16 25.4		28	18 1.3		15	23 2.2		28	3 41.8
	13	5 32.8	May	2	7 16.0		19	12 24.6	Dec.	1	17 3.0
	16	18 41.0		5	20 31.5		23	1 47.4		5	6 23.3
	20	7 47.9		9	9 47.3		26	15 10.0		8	19 43.7
	23	20 55.7		12	23 3.7		30	4 33.0		12	9 3.4
	27	10 3.0		16	12 20.5	Aug.	2	17 55.9		15	22 23.2
March	2	23 10.8		20	1 37.8		6	7 19.1		19	11 41.8
	6	12 18.2		23	14 55.5		9	20 42.3		23	1 0.7
	10	1 26.5		27	4 13.7		13	10 5.4		26	14 18.6
	13	14 34.5		30	17 32.2	Oct	12	21 40.1		30	3 36.7
	17	3 43.4	June	3	6 51.2		16	11 12.6			

SATELLITE III.

		h m			h m			h m			h m
Jan	7	3 51.2	March	26	16 36.5	June	13	10 32.5	Oct.	27	21 51.7
	14	7 21.5	April	2	20 4.0		20	14 44.0	Nov	4	2 12.7
	21	10 47.6		9	23 35.6		27	18 58.1		11	6 31.8
	28	14 10.4		17	3 11.2	July	4	23 14.9		18	10 48.9
Feb	4	17 30.4		24	6 51.1		12	3 34.1		25	15 3.9
	11	20 47.0	May	1	10 35.8		19	7 54.8	Dec	2	19 16.5
	19	0 4.0		8	14 25.4		26	12 17.0		9	23 25.7
	26	3 19.4		15	18 19.5	Aug	2	16 40.4		17	3 31.5
March	5	6 35.3		22	22 17.7		9	21 5.0		24	7 33.3
	12	9 51.9		30	2 19.3	Oct	13	13 4.5		31	11 31.1
	19	13 12.9	June	6	6 24.4		20	17 28.8			

SATELLITE IV.

		h m			h m			h m			h m
Jan	6	14 40.7	March	30	15 32.8	June	22	6 23.2	Nov	4	0 30.1
	23	5 57.0	April	16	7 6.4	July	9	1 57.3		20	20 28.0
Feb	8	20 17.4	May	2	23 38.0		25	21 57.9	Dec	7	15 44.2
	25	10 33.2		19	17 4.6	Aug	11	18 17.7		24	10 19.4
March	14	0 48.7	June	5	11 22.1	Oct	18	4 27.3			

WASHINGTON MEAN TIME.

JANUARY.

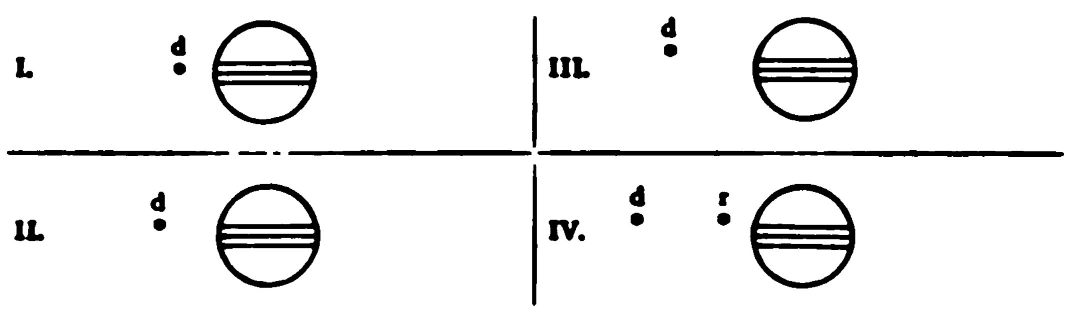
d	h	m	s				d	h	m	s				d	h	m	s			
1	11	33	42.2	I.*	Ec.	Dis.	11	7	28		I.	Sh.	Eg.	21	22	19		I.	Sh.	Eg.
	12	1	55.9	II.*	Ec.	Dis.		8	22		I.	Tr.	Eg.		23	2		I.	Tr.	Eg.
	14	54		I.*	Oc.	Re.	12	2	23	21.8	I.	Ec.	Dis.	22	17	13	4.0	I.*	Ec.	Dis.
	17	1		II.*	Oc.	Re.		3	56	45.7	II.	Ec.	Dis.		19	50	36.7	II.	Ec.	Dis.
2	8	46		I.	Sh.	In.		5	34		I.	Oc.	Re.		20	12		I.	Oc.	Re.
	9	49		I.	Tr.	In.		8	37		II.	Oc.	Re.		21	0	37.4	IV.	Ec.	Dis.
	11	6		I.*	Sh.	Eg.		23	37		I.	Sh.	In.	23	0	7		II.	Oc.	Re.
	12	8		I.*	Tr.	Eg.	13	0	30		I.	Tr.	In.		1	29	9.4	IV.	Ec.	Re.
3	6	1	57.6	I.	Ec.	Dis.		1	57		I.	Sh.	Eg.		3	51		IV.	Oc.	Dis.
	6	34		II.	Sh.	In.		2	49		I.	Tr.	Eg.		8	4		IV.	Oc.	Re.
	8	6		III.	Sh.	In.		20	51	34.8	I.	Ec.	Dis.		14	27		I.*	Sh.	In.
	8	42		II.	Tr.	In.		22	24		II.	Sh.	In.		15	10		I.*	Tr.	In.
	9	20		I.	Oc.	Re.	14	0	1		I.	Oc.	Re.		16	47		I.*	Sh.	Eg.
	9	28		II.	Sh.	Eg.		0	12		II.	Tr.	In.		17	28		I.*	Tr.	Eg.
	11	33		II.*	Tr.	Eg.		1	18		II.	Sh.	Eg.	24	11	41	23.0	I.*	Ec.	Dis.
	11	44		III.*	Sh.	Eg.		2	7	26.1	III.	Ec.	Dis.		14	14		II.*	Sh.	In.
	12	19		III.*	Tr.	In.		3	3		II.	Tr.	Eg.		14	39		I.*	Oc.	Re.
	15	48		III.*	Tr.	Eg.		5	35	21.9	III.	Ec.	Re.		15	39		II.*	Tr.	In.
4	3	14		I.	Sh.	In.		5	37		III.	Oc.	Dis.		17	8		II.*	Sh.	Eg.
	4	16		I.	Tr.	In.		9	6		III.*	Oc.	Re.		18	30		II.*	Tr.	Eg.
	5	34		I.	Sh.	Eg.		10	33		IV.*	Sh.	In.		20	1		III.	Sh.	In.
	6	35		I.	Tr.	Eg.		15	15		IV.*	Sh.	Eg.		22	47		III.	Tr.	In.
5	0	30	14.0	I.	Ec.	Dis.		18	5		I.*	Sh.	In.		23	38		III.	Sh.	Eg.
	1	20	34.2	II.	Ec.	Dis.		18	50		IV.*	Tr.	In.	25	2	15		III.	Tr.	Eg.
	3	47		I.	Oc.	Re.		18	57		I.	Tr.	In.		8	56		I.*	Sh.	In.
	6	14		II.	Oc.	Re.		20	25		I.	Sh.	Eg.		9	36		I.*	Tr.	In.
	21	43		I.	Sh.	In.		21	16		I.	Tr.	Eg.		11	16		I.*	Sh.	Eg.
	22	43		I	Tr.	In.		23	4		IV.	Tr.	Eg.		11	54		I.*	Tr.	Eg.
6	0	3		I	Sh.	Eg.	15	15	19	51.7	I.*	Ec.	Dis.	26	6	9	44.3	I.	Ec.	Dis.
	1	2		I	Tr.	Eg.		17	14	20.2	II.*	Ec.	Dis.		9	5		I.*	Oc.	Re.
	3	0	52.4	IV	Ec.	Dis.		18	27		I.*	Oc.	Re.		9	9	17.0	II.*	Ec.	Dis.
	8	32	34.2	IV.	Ec.	Re.		21	47		II.	Oc.	Re.		13	17		II.*	Oc.	Re.
	12	34		IV.*	Oc.	Dis.	16	12	34		I.*	Sh.	In.	27	3	24		I.	Sh.	In.
	16	48		IV.*	Oc.	Re.		13	24		I.*	Tr.	In.		4	2		I.	Tr.	In.
	18	58	28.7	I.	Ec.	Dis.		14	54		I.*	Sh.	Eg.		5	44		I.	Sh.	Eg.
	19	51		II.	Sh.	In.		15	43		I.*	Tr.	Eg.		6	21		I.	Tr.	Eg.
	21	52		II.	Tr.	In.	17	9	48	9.0	I.*	Ec.	Dis.	28	0	38	3.3	I.	Ec.	Dis.
	22	10	3.8	III.	Ec.	Dis.		11	42		II.*	Sh.	In.		3	31		I.	Oc.	Re.
	22	14		I.	Oc.	Re.		12	54		I.*	Oc.	Re.		3	31		II.	Sh.	In.
	22	45		II.	Sh.	Eg.		13	22		II.*	Tr.	In.		4	46		II.	Tr.	In.
7	0	43		II	Tr.	Eg.		14	35		II.*	Sh.	Eg.		6	24		II.	Sh.	Eg.
	1	38	25.6	III.	Ec.	Re.		16	3		III.*	Sh.	In.		7	37		II.	Tr.	Eg.
	2	7		III.	Oc.	Dis.		16	13		II.*	Tr.	Eg.		10	2	51.2	III.*	Ec.	Dis.
	5	36		III.	Oc.	Re.		19	22		III.	Tr.	In.		15	54		III.*	Oc.	Re.
	16	11		I.*	Sh.	In.		19	40		III.	Sh.	Eg.		21	53		I.	Sh.	In.
	17	10		I.*	Tr.	In.		22	50		III.	Tr.	Eg.		22	28		I.	Tr.	In.
	18	31		I.*	Sh.	Eg.	18	7	2		I.	Sh.	In.	29	0	13		I.	Sh.	Eg.
	19	29		I.	Tr.	Eg.		7	50		I.	Tr.	In.		0	47		I.	Tr.	Eg.
8	13	26	[illegible]	I.*	Ec.	Dis.		9	22		I.*	Sh.	Eg.		19	6	23.7	I.	Ec.	Dis.
	14	38	[illegible]	II.*	Ec.	Dis.		10	9		I.*	Tr.	Eg.		21	57		I.	Oc.	Re.
	16	41		I.*	Oc.	Re.	19	4	16	28.5	I.	Ec.	Dis.		22	26	55.5	II.	Ec.	Dis.
	19	25		II.	Oc.	Re.		6	33	0.3	II.	Ec.	Dis.	30	2	26		II.	Oc.	Re.
9	10	40		I.*	Sh.	In.		7	20		I.	Oc.	Re.		16	21		I.*	Sh.	In.
	11	36		I.*	Tr.	In.		10	58		II.*	Oc.	Re.		16	54		I.*	Tr.	In.
	13	0		I.*	Sh.	Eg.	20	1	30		I.	Sh.	In.		18	41		I.*	Sh.	Eg.
	13	54		I.*	Tr.	Eg.		2	17		I.	Tr.	In.		19	13		I.	Tr.	Eg.
10	7	55	1.0	I.	Ec.	Dis.		3	50		I.	Sh.	Eg.	31	4	31		IV.	Sh.	In.
	9	8		II.	Sh.	In.		4	36		I.	Tr.	Eg.		9	10		IV.*	Sh.	Eg.
	11	3		II.*	Tr.	In.		22	44	45.6	I.	Ec.	Dis.		9	42		IV.*	Tr.	In.
	11	8		I.*	Oc.	Re.	21	0	58		II.	Sh.	In.		13	34	44.4	I.*	Ec.	Dis.
	12	2		II.*	Sh.	Eg.		1	46		I.	Oc.	Re.		13	55		IV.*	Tr.	Eg.
	12	5		III.*	Sh.	In.		2	30		II.	Tr.	In.		16	23		I.*	Oc.	Re.
	13	53		II.*	Tr.	Eg.		3	52		II.	Sh.	Eg.		16	48		II.*	Sh.	In.
	15	42		III.*	Sh.	Eg.		5	21		II.	Tr.	Eg.		17	53		II.*	Tr.	In.
	15	52		III.*	Tr.	In.		6	5	2.2	III.	Ec.	Dis.		19	41		II.	Sh.	Eg.
	19	21		III.	Tr.	Eg.		12	32		III.*	Oc.	Re.		20	44		II.	Tr.	Eg.
11	5	8		I.	Sh.	In.		19	59		I.	Sh.	In.		23	39		III.	Sh.	In.
	6	3		I	Tr.	In.		20	43		I	Tr.	In.							

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance, Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

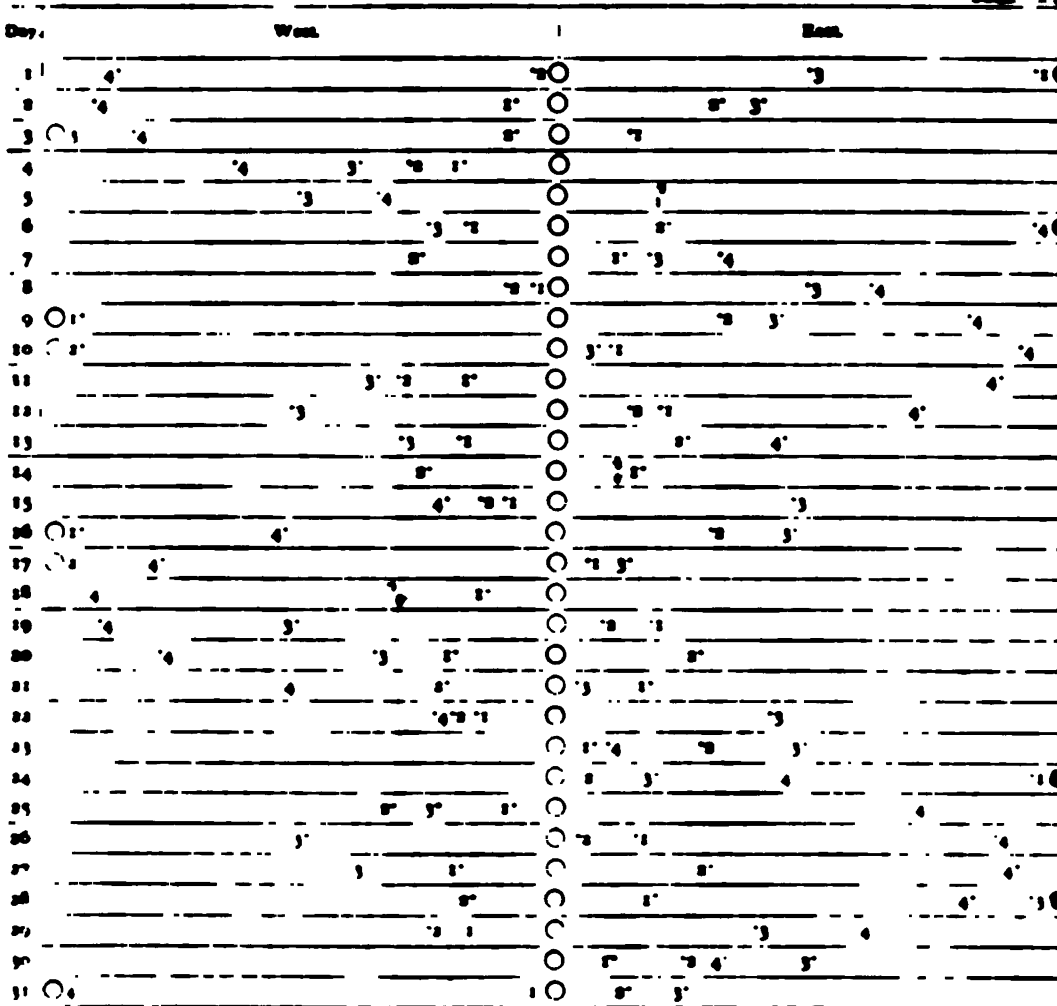
WASHINGTON MEAN TIME.

JANUARY

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 13h 30m for an Inverting Telescope.



WASHINGTON MEAN TIME.

FEBRUARY.

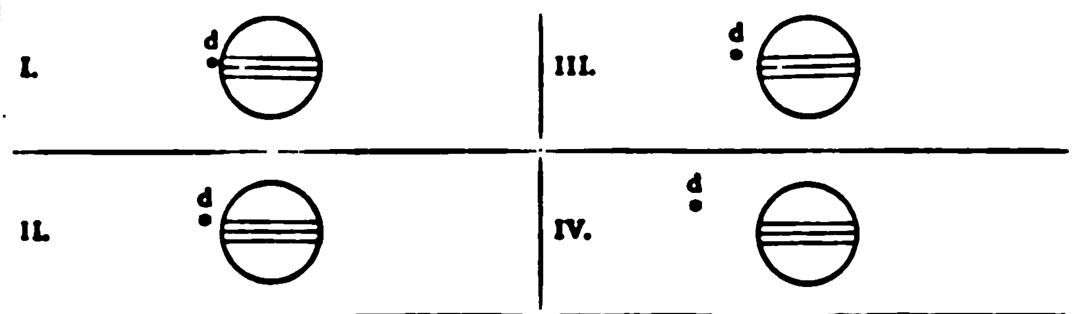
d	h	m	s				d	h	m	s				d	h	m	s						
1	2	8		III.	Tr.	In.	10	9	32		I.*	Sh.	Eg.	19	3	41		I.	Tr.	In.			
	3	36		III.	Sh.	Eg.		9	50		I.*	Tr.	Eg.		5	55		I.	Sh.	Eg.			
	5	36		III.	Tr.	Eg.	11	4	25	2.0	I.	Ec.	Dis.		6	0		I.	Tr.	Eg			
	10	50		I.*	Sh.	In.		6	59		I.*	Oc.	Re.	20	0	47	11.1	I.	Ec.	Dis.			
	11	21		I.*	Tr.	In.		8	39		II.*	Sh.	In.		3	8		I.	Oc	Re			
	13	10		I.*	Sh.	Eg.		9	14		II.*	Tr.	In.		5	16	5.0	II.	Ec.	Dis.			
	13	40		I.*	Tr.	Eg.		11	32		II.*	Sh.	Eg.		9	13		II.*	Oc.	Re.			
2	8	3	7.8	I.*	Ec.	Dis.		12	5		II.*	Tr.	Eg.		22	4		I.	Sh.	In.			
	10	49		I.*	Oc.	Re.		17	59	39.7	III.*	Ec.	Dis.		22	7		I.	Tr.	In.			
	11	45	36.0	II.*	Ec.	Dis.		22	32		III.	Oc.	Re.	21	0	23		I.	Sh.	Eg.			
	15	34		II.*	Oc.	Re.	12	1	41		I.	Sh.	In.		0	26		I.	Tr.	Eg.			
3	5	18		I.	Sh.	In.		1	57		I.	Tr.	In.		19	15	37.5	I.	Ec.	Dis.			
	5	47		I.	Tr.	In.		4	1		I.	Sh.	Eg.		21	34		I.	Oc.	Re.			
	7	38		I.*	Sh.	Eg.		4	16		I.	Tr.	Eg.	22	0	30		II.	Sh.	In.			
	8	6		I.*	Tr.	Eg.		22	53	27.2	I.	Ec.	Dis.		0	33		II.	Tr.	In.			
4	2	31	28.4	I.	Ec.	Dis.	13	1	25		I.	Oc.	Re.		3	23		II.	Sh.	Eg.			
	5	15		I.	Oc.	Re.		3	39	40.1	II.	Ec.	Dis.		3	24		II.	Tr.	Eg.			
	6	5		II.	Sh.	In.		6	58		II.*	Oc.	Re.		11	54		III.*	Sh.	In.			
	7	0		II.	Tr.	In.		20	10		I.	Sh.	In.		11	58		III.*	Tr.	In.			
	8	58		II.*	Sh.	Eg.		20	23		I.	Tr.	In.		15	29		III.*	Sh.	Eg.			
	9	51		II.*	Tr.	Eg.		22	29		I.	Sh.	Eg.		15	29		III.*	Tr.	Eg.			
	14	1	25.2	III.*	Ec.	Dis.		22	42		I.	Tr.	Eg.		16	32		I.*	Sh.	In.			
	19	15		III.	Oc.	Re.	14	17	21	51.2	I.*	Ec.	Dis.		16	33		I.*	Tr.	In.			
	23	47		I.	Sh.	In.		19	51		I.	Oc.	Re.		18	51		I.	Sh.	Eg.			
5	0	13		I.	Tr.	In.		21	56		II.	Sh.	In.		18	52		I.	Tr.	Eg			
	2	7		I.	Sh.	Eg.		22	21		II.	Tr.	In.	23	13	41		I.*	Oc.	Dis			
	2	32		I.	Tr.	Eg.	15	0	49		II.	Sh.	Eg.		16	0		I.*	Oc.	Re.			
	20	59	51.0	I.	Ec.	Dis.		1	11		II.	Tr.	Eg.		19	30		II.	Oc.	Dis.			
	23	40		I.	Oc.	Re.		7	56		III.*	Sh.	In.		22	23	3.3	II.	Ec.	Re.			
6	1	3	16.7	II.	Ec.	Dis.		8	43		III.*	Tr.	In.	24	10	59		I.*	Tr.	In.			
	4	42		II.	Oc	Re.		11	31		III.*	Sh.	Eg.		11	1		I.*	Sh.	In			
	18	15		I.*	Sh.	In.		12	12		III.*	Tr.	Eg.		13	18		I.*	Tr.	Eg.			
	18	39		I.	Tr.	In.		14	38		I.*	Sh.	In.		13	20		I.*	Sh.	Eg.			
	20	35		I.	Sh.	Eg.		14	49		I.*	Tr.	In.	25	8	7		I.*	Oc.	Dis.			
	20	58		I.	Tr.	Eg.		16	58		I.*	Sh.	Eg.		8	27		IV.*	Oc.	Dis.			
7	15	28	13.5	I.*	Ec.	Dis.		17	8		I.*	Tr.	Eg.		10	27	2.5	I.*	Ec.	Re.			
	18	7		I.*	Oc.	Re.	16	11	50	19.1	I.*	Ec.	Dis.		13	22	2.1	IV.*	Ec	Re.			
	19	22		II.	Sh	In.		14	17		I.*	Oc.	Re.		13	40		II.*	Tr	In.			
	20	7		II.	Tr.	In.		16	58	19.7	II.*	Ec.	Dis.		13	47		II.*	Sh.	In			
	22	15		II.	Sh.	Eg.		20	6		II.	Oc.	Re.		16	31		II.*	Tr.	Eg.			
	22	58		II.	Tr.	Eg.		22	29		IV.	Sh.	In.		16	40		II.*	Sh	Eg.			
8	3	57		III.	Sh.	In.		23	59		IV.	Tr.	In.	26	1	35		III.	Oc.	Dis			
	5	26		III.	Tr	In	17	3	5		IV.	Sh.	Eg.		5	21	31.2	III.	Ec.	Re.			
	7	33		III.*	Sh	Eg.		4	14		IV.	Tr.	Eg.		5	25		I.	Tr.	In			
	8	55		III.*	Tr	Eg		9	7		I.*	Sh.	In.		5	30		I.	Sh.	In.			
	12	44		I.*	Sh.	In.		9	15		I.*	Tr.	In.		7	44		I.*	Tr.	Eg			
	13	5		I*	Tr.	In		11	27		I.*	Sh.	Eg.		7	49		I.*	Sh.	Eg.			
	15	0	24.6	IV*	Ec.	Dis.		11	34		I*	Tr.	Eg.	27	2	32		I.	Oc.	Dis			
	15	4		I*	Sh	Eg.	18	6	18	44.0	I.	Ec.	Dis.		4	55	31.6	I.	Ec.	Re.			
	15	24		I.*	Tr.	Eg.		8	42		I.*	Oc.	Re.		8	38		II.*	Oc.	Dis.			
	22	34		IV.	Oc	Re		11	13		II.*	Sh.	In.		11	40	39.7	II.*	Ec	Re.			
9	9	56	39 2	I.*	Ec.	Dis.		11	27		II*	Tr.	In.		23	51		I.	Tr	In.			
	12	33		I*	Oc.	Re.		14	6		II.*	Sh	Eg.		23	58		I.	Sh.	In.			
	14	21	57.0	II.*	Ec	Dis		14	18		II.*	Tr.	Eg.	28	2	10		I	Tr	Eg			
	17	51		II.*	Oc.	Re		21	58	16.5	III.	Ec.	Dis.		2	17		I.	Sh.	Eg.			
10	7	12		I.*	Sh.	In.	19	1	49		III.	Oc.	Re.		20	58		I.	Oc.	Dis.			
	7	31		I*	Tr.	In.		3	35		I	Sh	In.		23	24	0.0	I	Ec.	Re.			

NOTE. In. denotes ingress, Eg. egress, Dis. disappearance, Re. reappearance; Ec. eclipse. Oc. denotes occultation. Tr. transit of the satellite; Sh. transit of the shadow; * Visible at Washington.

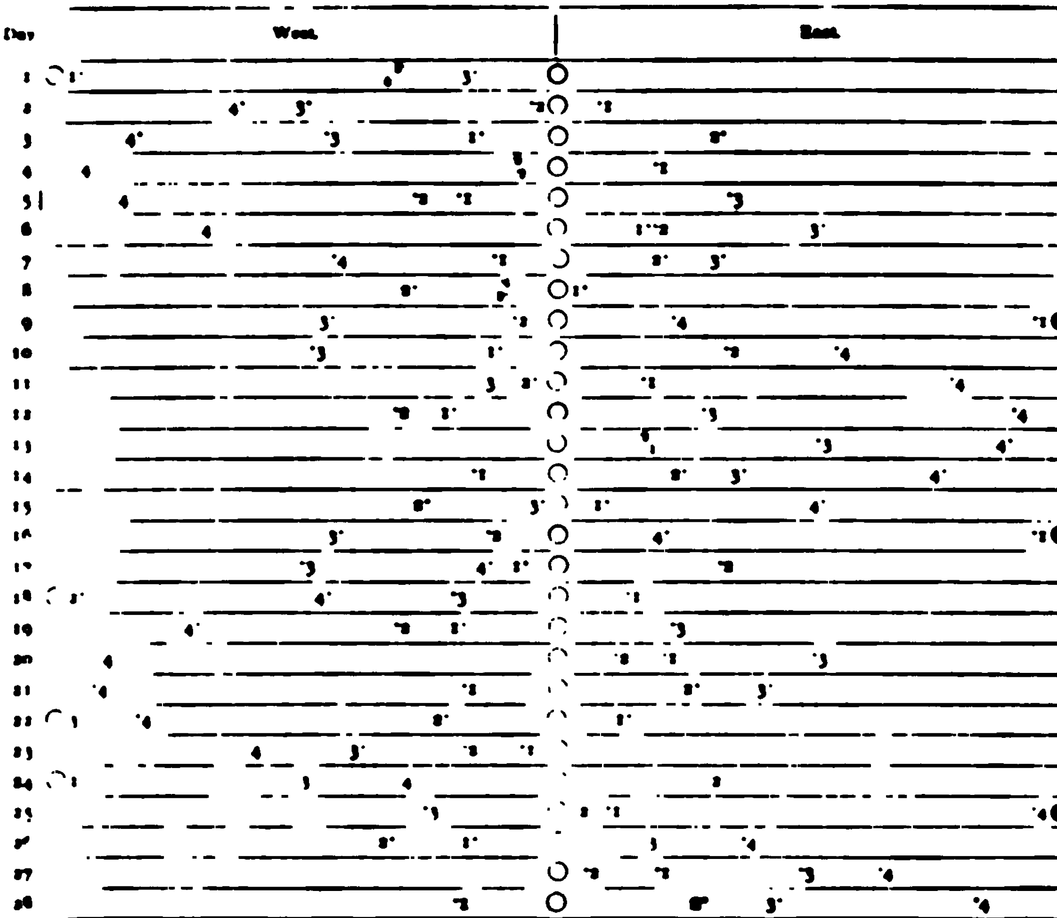
WASHINGTON MEAN TIME.

FEBRUARY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 12h 30m for an Inverting Telescope.



WASHINGTON MEAN TIME.

MARCH.

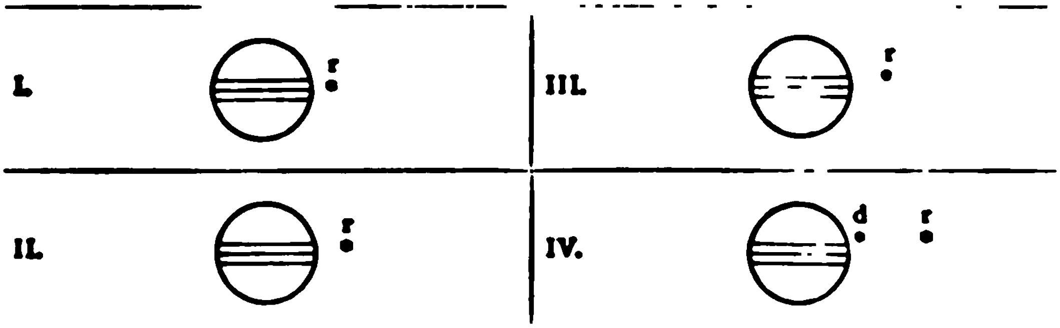
d	h	m	s			
1	2	46		II	Tr	In.
	3	4		II.	Sh	In.
	5	37		II	Tr.	Eg.
	5	57		II.	Sh.	Eg.
	15	15		III.*	Tr.	In.
	15	53		III.*	Sh.	In.
	18	17		I.	Tr.	In.
	18	27		I.	Sh.	In.
	18	45		III.	Tr.	Eg.
	19	28		III.	Sh.	Eg.
	20	36		I.	Tr.	Eg
	20	46		I.	Sh.	Eg.
2	15	24		I.*	Oc.	Dis.
	17	52	32.6	I.*	Ec.	Re.
	21	45		II.	Oc.	Dis.
3	0	59	5.6	II.	Ec.	Re.
	12	43		I.*	Tr.	In.
	12	55		I.*	Sh.	In.
	15	2		I.*	Tr.	Eg.
	15	14		I.*	Sh.	Eg.
4	9	50		I.*	Oc.	Dis.
	12	21	1.7	I.*	Ec.	Re.
	15	53		II.*	Tr.	In.
	16	22		II.*	Sh.	In.
	18	45		II.	Tr.	Eg.
	19	15		II.	Sh.	Eg.
5	4	50		III.	Oc.	Dis.
	7	9		I.*	Tr.	In.
	7	24		I.*	Sh.	In.
	9	19	15.0	III.*	Ec.	Re.
	9	28		I.*	Tr.	Eg.
	9	43		I.*	Sh.	Eg.
	14	6		IV.*	Tr.	In.
	16	29		IV.*	Sh.	In.
	18	25		IV.	Tr.	Eg.
	21	1		IV.	Sh.	Eg.
6	4	16		I.	Oc.	Dis.
	6	49	33.4	I.*	Ec.	Re.
	10	53		II.*	Oc.	Dis.
	14	16	43.6	II.*	Ec.	Re.
7	1	35		I.	Tr.	In.
	1	52		I.	Sh.	In.
	3	54		I.	Tr.	Eg.
	4	12		I.	Sh.	Eg.
	22	42		I	Oc.	Dis.
8	1	18	3.9	I.	Ec	Re.
	5	0		II	Tr.	In.
	5	39		II.	Sh.	In.
	7	52		II.*	Tr.	Eg.
	8	31		II.*	Sh	Eg.
	18	32		III	Tr.	In
	19	52		III	Sh.	In.
	20	1		I	Tr.	In.
	20	21		I.	Sh.	In.
	22	2		III.	Tr.	Eg.
	22	20		I.	Tr.	Eg.
	22	40		I.	Sh.	Eg.
	23	26		III	Sh.	Eg
9	17	8		I.*	Oc.	Dis.
	19	46	39.0	I.	Ec.	Re.
10	0	1		II.	Oc.	Dis.
	3	35	6.7	II.	Ec.	Re.
	14	27		I.*	Tr	In
	14	50		I.*	Sh	In.
	16	46		I.*	Tr.	Eg.
	17	9		I.*	Sh	Eg
11	11	34		I.*	Oc	Dis.
	14	15	10.3	I.*	Ec	Re
11	18	7		II	Tr.	In
	18	57		II.	Sh.	In.
	20	59		II.	Tr.	Eg.
	21	48		II.	Sh	Eg.
12	8	7		III.*	Oc.	Dis.
	8	53		I.*	Tr.	In.
	9	18		I.*	Sh.	In.
	11	12		I.*	Tr.	Eg.
	11	37		I.*	Sh.	Eg.
	13	17	16.3	III.*	Ec.	Re.
13	6	0		I.	Oc.	Dis.
	8	43	44.4	I.*	Ec	Re.
	13	9		II.*	Oc.	Dis.
	16	52	45.8	II.*	Ec.	Re.
	22	38		IV.	Oc.	Dis.
14	3	0		IV.	Oc.	Re.
	3	2	32.0	IV.	Ec.	Dis.
	3	19		I.	Tr.	In.
	3	47		I.	Sh	In.
	5	38		I.	Tr.	Eg.
	6	6		I.	Sh.	Eg.
	7	19	38.6	IV.*	Ec.	Re.
15	0	27		I.	Oc.	Dis.
	3	12	16.8	I.	Ec.	Re.
	7	15		II.*	Tr.	In.
	8	14		II.*	Sh.	In.
	10	7		II.*	Tr.	Eg.
	11	6		II.*	Sh.	Eg.
	21	46		I.	Tr.	In.
	21	51		III.	Tr.	In.
	22	16		I.	Sh.	In.
	23	52		III.	Sh.	In.
16	0	5		I.	Tr.	Eg.
	0	35		I.	Sh.	Eg.
	1	22		III.	Tr.	Eg.
	3	25		III.	Sh.	Eg.
	18	53		I.	Oc.	Dis.
	21	40	54.3	I.	Ec.	Re.
17	2	18		II.	Oc.	Dis.
	6	11	6.0	II.	Ec.	Re.
	16	12		I.*	Tr.	In.
	16	44		I.*	Sh.	In.
	18	31		I.	Tr.	Eg.
	19	3		I.	Sh.	Eg.
18	13	19		I.	Oc.	Dis.
	16	9	28.0	I.*	Ec.	Re.
	20	23		II.	Tr.	In.
	21	32		II.	Sh.	In.
	23	15		II.	Tr.	Eg
19	0	24		II.	Sh.	Eg.
	10	38		I.*	Tr.	In.
	11	13		I.*	Sh.	In.
	11	27		III.*	Oc.	Dis.
	12	57		I.*	Tr.	Eg.
	13	31		I.*	Sh.	Eg.
	17	15	31.7	III.	Ec.	Re.
20	7	46		I.*	Oc.	Dis.
	10	38	4.4	I.*	Ec	Re
	15	26		II.*	Oc.	Dis.
	19	28	45.8	II.	Ec.	Re.
21	5	5		I.	Tr.	In
	5	42		I.	Sh	In
	7	24		I.*	Tr.	Eg
	8	1		I.*	Sh.	Eg
22	2	12		I	Oc	Dis
	4	31		IV.	Tr.	In
	5	6	38.6	I	Ec	Re.
	8	56		IV.*	Tr	Eg
22	9	32		II.*	Tr	In.
	10	29		IV.*	Sh.	In
	10	50		II.*	Sh	In.
	12	24		II.*	Tr.	Eg.
	13	42		II.*	Sh.	Eg.
	14	57		IV.*	Sh.	Eg.
	23	31		I.	Tr.	In.
23	0	10		I.	Sh.	In.
	1	12		III.	Tr.	In.
	1	50		I.	Tr.	Eg.
	2	29		I.	Sh.	Eg.
	3	50		III.	Sh.	In.
	4	44		III.	Tr.	Eg.
	7	23		III.*	Sh.	Eg.
	20	38		I.	Oc.	Dis.
	23	35	18.5	I.	Ec.	Re.
24	4	36		II.	Oc.	Dis.
	8	47	2.4	II.*	Ec.	Re.
	17	58		I.	Tr.	In.
	18	39		I.	Sh.	In.
	20	17		I.	Tr.	Eg.
	20	58		I.	Sh.	Eg.
25	15	5		I.*	Oc.	Dis.
	18	3	54.1	I.	Ec.	Re.
	22	41		II.	Tr.	In.
26	0	7		II.	Sh.	In.
	1	33		II.	Tr.	Eg.
	2	59		II.	Sh.	Eg.
	12	24		I.*	Tr.	In.
	13	8		I.*	Sh.	In.
	14	43		I.*	Tr.	Eg.
	14	51		III.*	Oc.	Dis.
	15	27		I.*	Sh.	Eg.
	21	14	31.7	III.	Ec.	Re.
27	9	31		I.*	Oc.	Dis.
	12	32	32.7	I.*	Ec.	Re.
	17	45		II.	Oc.	Dis.
	22	4	42.8	II.	Ec.	Re.
28	6	51		I.*	Tr.	In.
	7	36		I.*	Sh.	In.
	9	10		I.*	Tr.	Eg.
	9	55		I.*	Sh.	Eg.
29	3	58		I.	Oc.	Dis.
	7	1	8.7	I.*	Ec.	Re.
	11	50		II.*	Tr.	In
	13	25		II.*	Sh.	In
	14	42		II.*	Tr.	Eg.
	16	16		II	Sh.	Eg.
30	1	17		I.	Tr.	In.
	2	5		I.	Sh	In.
	3	36		I.	Tr.	Eg
	4	24		I.	Sh.	Eg.
	4	36		III.	Tr.	In.
	7	49		III.*	Sh.	In.
	8	9		III.*	Tr.	Eg.
	11	21		III.*	Sh.	Eg.
	13	19		IV.*	Oc.	Dis.
	17	47		IV.	Oc.	Re.
	21	4	27.0	IV.	Ec.	Dis.
	22	25		I.	Oc.	Dis.
31	1	17	8.1	IV.	Ec.	Re.
	1	29	50.6	I.	Ec.	Re
	6	56		II.*	Oc.	Dis
	11	22	55.5	II.*	Ec.	Re
	19	44		I.	Tr.	In.
	20	34		I.	Sh.	In.
	22	3		I.	Tr.	Eg
	22	53		I	Sh	Eg

NOTE.—In., denotes ingress, Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite, Sh., transit of the shadow; * Visible at Washington.

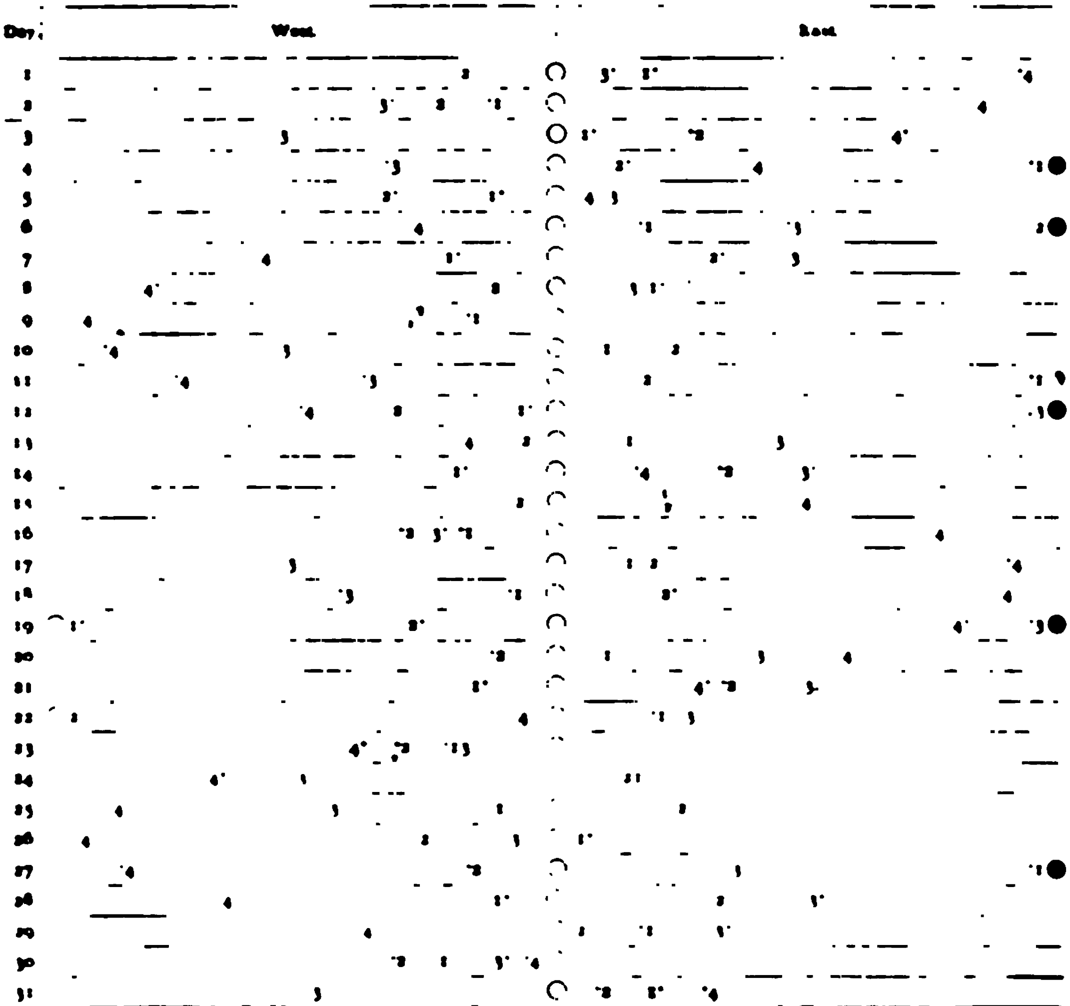
WASHINGTON MEAN TIME

MARCH

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 11h 30m for an Inverting Telescope.



WASHINGTON MEAN TIME.

APRIL.

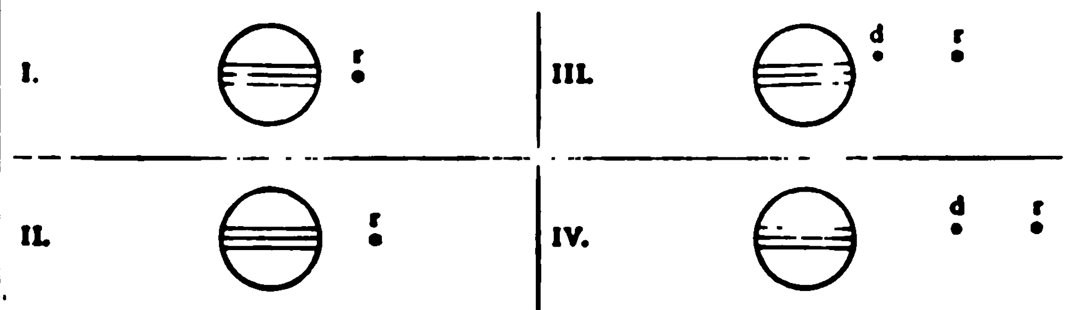
d	h	m	s			
1	16	51		I.	Oc.	Dis.
	19	58	27.9	I.	Ec.	Re.
2	1	0		II.	Tr.	In.
	2	43		II.	Sh.	In.
	3	53		II.	Tr.	Eg.
	5	34		II.	Sh.	Eg.
	14	11		I.*	Tr.	In.
	15	2		I.*	Sh.	In.
	16	30		I.	Tr.	Eg.
	17	21		I.	Sh.	Eg.
	18	17		III.	Oc.	Dis.
	21	50		III.	Oc.	Re.
	21	50	56.1	III.	Ec.	Dis.
3	1	13	8.7	III.	Ec.	Re.
	11	18		I.*	Oc.	Dis.
	14	27	8.8	I.*	Ec.	Re.
	20	6		II.	Oc.	Dis.
4	0	40	36.0	II.	Ec.	Re.
	8	38		I.*	Tr.	In.
	9	31		I.*	Sh.	In.
	10	57		I.*	Tr.	Eg.
	11	50		I.*	Sh.	Eg.
5	5	45		I.	Oc.	Dis.
	8	55	46.3	I.*	Ec.	Re.
	14	11		II.*	Tr.	In.
	16	1		II.	Sh.	In.
	17	4		II.	Tr.	Eg.
	18	52		II.	Sh.	Eg.
6	3	5		I.	Tr.	In.
	4	0		I.	Sh.	In.
	5	24		I.	Tr.	Eg.
	6	19		I.	Sh.	Eg.
	8	5		III.*	Tr.	In.
	11	39		III.*	Tr.	Eg.
	11	48		III.*	Sh.	In.
	15	19		III.*	Sh.	Eg
7	0	12		I.	Oc.	Dis.
	3	24	29.8	I.	Ec.	Re.
	9	17		II.*	Oc.	Dis.
	13	58	44.0	II.*	Ec.	Re.
	19	35		IV.	Tr.	In.
	21	32		I.	Tr.	In.
	22	28		I.	Sh	In.
	23	51		I.	Tr	Eg.
8	0	5		IV.	Tr.	Eg.
	0	47		I.	Sh	Eg
	4	30		IV.	Sh	In.
	8	53		IV.*	Sh	Eg.
	18	39		I.	Oc.	Dis.
	21	53	8.9	I	Ec	Re.
9	3	22		II	Tr.	In.
	5	19		II	Sh.	In.
	6	15		II.	Tr.	Eg.
	8	10		II.*	Sh.	Eg.
	15	59		I.	Tr.	In.
	16	57		I.	Sh.	In.
	18	18		I.	Tr.	Eg.
	19	16		I.	Sh	Eg.
	21	49		III.	Oc.	Dis.
10	1	23		III.	Oc.	Re
	1	50	27.9	III.	Ec	Dis
	5	12	3.7	III	Ec.	Re.
	13	6		I.*	Oc	Dis
	16	21	51.5	I	Ec	Re
	22	29		II	Oc	Dis
11	3	16	23.6	II	Ec	Re
11	10	26		I.*	Tr.	In.
	11	26		I.*	Sh.	In.
	12	45		I.*	Tr.	Eg.
	13	45		I.*	Sh.	Eg.
12	7	33		I.*	Oc.	Dis.
	10	50	30.7	I.*	Ec.	Re.
	16	34		II.	Tr.	In.
	18	37		II.	Sh.	In.
	19	27		II.	Tr.	Eg.
	21	28		II.	Sh.	Eg.
13	4	54		I.	Tr.	In.
	5	55		I.	Sh.	In.
	7	13		I.*	Tr.	Eg.
	8	14		I.*	Sh.	Eg.
	11	38		III.*	Tr.	In.
	15	12		III.	Tr.	Eg.
	15	47		III.	Sh.	In.
	19	18		III.	Sh.	Eg.
14	2	1		I.	Oc.	Dis.
	5	19	16.2	I.	Ec.	Re.
	11	41		II.*	Oc.	Dis.
	16	34	27.1	II.	Ec.	Re.
	23	21		I.	Tr.	In.
15	0	23		I.	Sh.	In.
	1	40		I.	Tr.	Eg.
	2	42		I.	Sh.	Eg.
	20	28		I.	Oc.	Dis.
	23	47	56.8	I.	Ec.	Re.
16	4	51		IV.	Oc.	Dis.
	5	47		II.	Tr.	In.
	7	55		II.*	Sh.	In.
	8	40		II.*	Tr.	Eg.
	9	22		IV.*	Oc.	Re.
	10	46		II.*	Sh.	Eg.
	15	6	50.3	IV.	Ec.	Dis.
	17	48		I.	Tr.	In.
	18	52		I.	Sh.	In.
	19	14	48.1	IV.	Ec.	Re.
	20	7		I.	Tr.	Eg.
	21	11		I.	Sh.	Eg
17	1	24		III.	Oc.	Dis.
	4	59		III.	Oc.	Re.
	5	49	34.5	III.	Ec.	Dis.
	9	10	32.7	III.*	Ec.	Re.
	14	55		I.	Oc.	Dis.
	18	16	41.0	I.	Ec.	Re.
18	0	53		II.	Oc.	Dis.
	5	52	6.0	II.	Ec.	Re
	12	16		I.*	Tr.	In
	13	21		I.*	Sh.	In.
	14	34		I.*	Tr.	Eg.
	15	40		I.	Sh.	Eg.
19	9	23		I.*	Oc.	Dis.
	12	45	21.3	I.*	Ec.	Re.
	19	0		II.	Tr.	In.
	21	13		II.	Sh.	In.
	21	53		II.	Tr.	Eg.
20	0	4		II.	Sh	Eg.
	6	43		I.	Tr.	In.
	7	49		I.*	Sb	In.
	9	2		I.*	Tr.	Eg
	10	8		I.*	Sb.	Eg
	15	16		III	Tr	In
	18	51		III	Tr	Eg.
	19	47		III	Sb	In
	23	17		III	Sh	Eg.
21	3	50		I.	Oc.	Dis.
	7	14	8.3	I.*	Ec.	Re.
	14	7		II.*	Oc.	Dis.
	19	10	4.2	II.	Ec.	Re.
22	1	10		I.	Tr.	In.
	2	18		I.	Sh.	In.
	3	29		I.	Tr.	Eg.
	4	37		I.	Sh.	Eg.
	22	18		I.	Oc.	Dis.
23	1	42	50.0	I.	Ec.	Re.
	8	14		II.*	Tr.	In.
	10	31		II.*	Sh.	In.
	11	7		II.*	Tr.	Eg.
	13	22		II.*	Sh.	Eg.
	19	38		I.	Tr.	In.
	20	47		I.	Sh.	In.
	21	57		I.	Tr.	Eg.
	23	6		I.	Sh.	Eg.
24	5	4		III.	Oc.	Dis.
	8	38		III.*	Oc.	Re.
	9	48	40.0	III.*	Ec.	Dis.
	11	35		IV.*	Tr.	In.
	13	9	0.0	III.*	Ec.	Re.
	16	8		IV.	Tr.	Eg.
	16	46		I.	Oc.	Dis.
	20	11	35.7	I.	Ec.	Re.
	22	31		IV.	Sh.	In.
25	2	50		IV.	Sh.	Eg.
	3	20		II.	Oc.	Dis.
	8	27	41.5	II.*	Ec.	Re.
	14	6		I.*	Tr.	In.
	15	16		I.	Sh.	In.
	16	25		I.	Tr.	Eg.
	17	34		I.	Sh.	Eg.
26	11	14		I.	Oc.	Dis.
	14	40	17.0	I.	Ec.	Re.
	21	28		II.	Tr.	In.
	23	49		II.	Sh.	In.
27	0	21		II.	Tr.	Eg.
	2	40		II.	Sh.	Eg.
	8	34		I.*	Tr.	In.
	9	44		I.*	Sh.	In.
	10	53		I.*	Tr.	Eg
	12	3		I.*	Sh.	Eg
	18	59		III.	Tr.	In
	22	34		III.	Tr.	Eg.
	23	46		III.	Sh.	In
28	3	16		III.	Sh.	Eg.
	5	42		I.	Oc.	Dis.
	9	9	5.4	I.*	Ec.	Re.
	16	35		II.	Oc.	Dis.
	21	45	34.7	II.	Ec.	Re.
29	3	2		I.	Tr.	In.
	4	13		I.	Sh.	In.
	5	21		I.	Tr.	Eg.
	6	31		I.	Sh.	Eg.
30	0	10		I.	Oc.	Dis.
	3	37	48.2	I.	Ec.	Re.
	10	43		II.*	Tr.	In.
	13	8		II.*	Sh.	In.
	13	36		II.*	Tr.	Eg
	15	58		II.	Sh.	Eg.
	21	30		I.	Tr.	In.
	22	42		I.	Sh.	In.
	23	49		I.	Tr.	Eg.

NOTE.—In., denotes ingress, Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

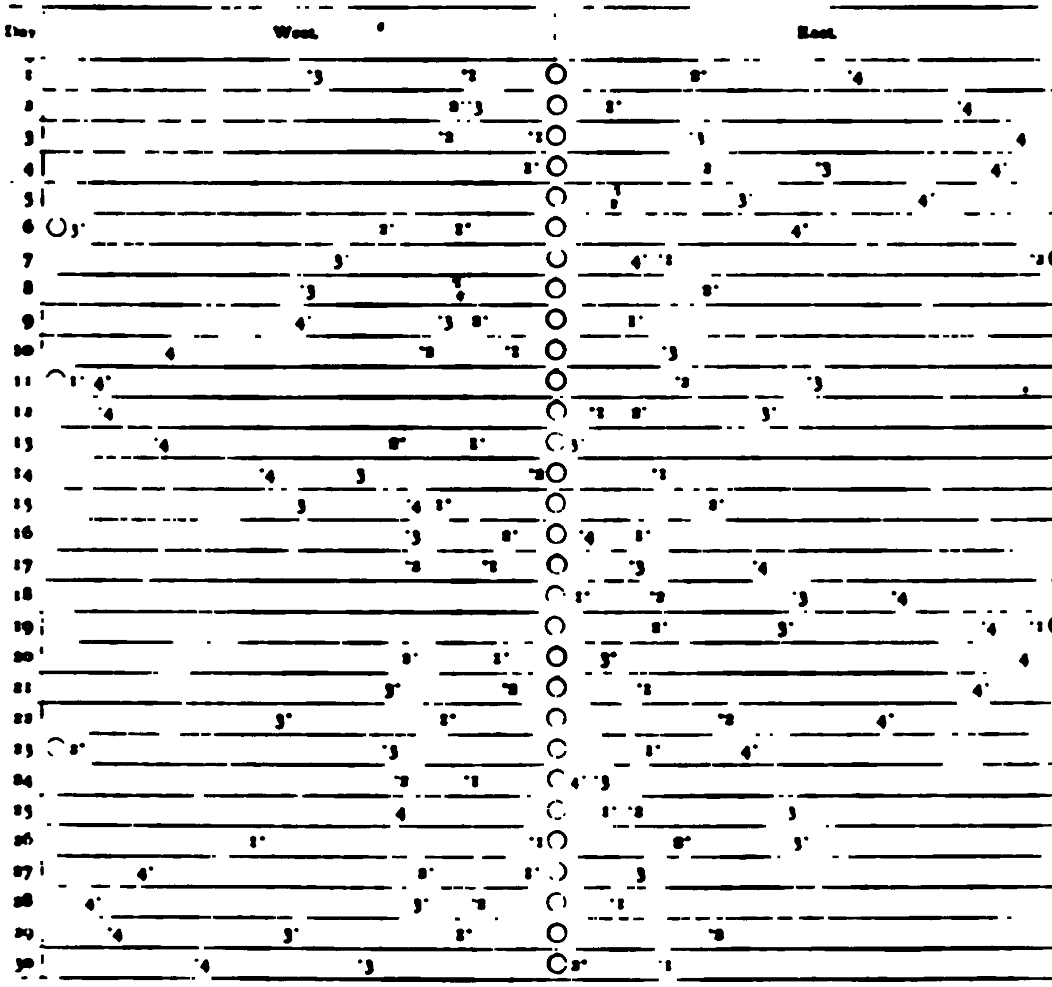
WASHINGTON MEAN TIME.

APRIL.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 11h 00m for an Inverting Telescope.



WASHINGTON MEAN TIME.

MAY.

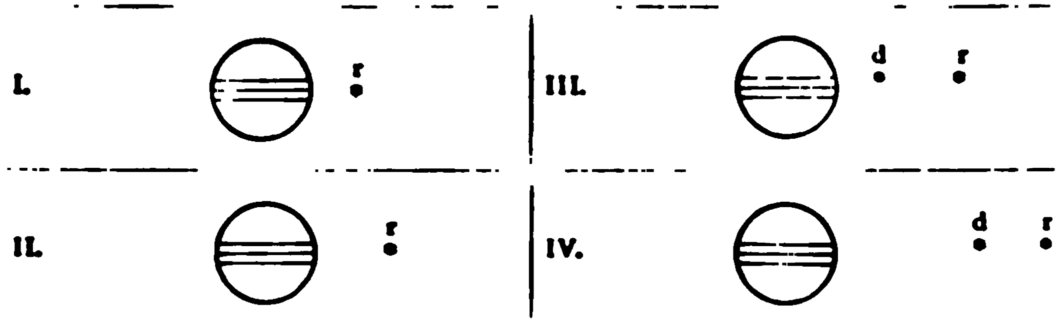
d	h	m	s			
1	1	1		I.	Sh.	Eg.
	8	48		III.*	Oc.	Dis.
	12	23		III.*	Oc.	Re.
	13	48	1.4	III.*	Ec.	Dis.
	17	7	42.4	III.	Ec.	Re.
	18	38		I.	Oc.	Dis.
	22	6	35.0	I.	Ec.	Re.
2	5	50		II.	Oc.	Dis.
	11	3	10.3	II.*	Ec.	Re.
	15	58		I.	Tr.	In.
	17	10		I.	Sh.	In.
	18	17		I.	Tr.	Eg.
	19	29		I.	Sh.	Eg.
	21	21		IV.	Oc.	Dis.
3	1	56		IV.	Oc.	Re.
	9	10	7.2	IV.*	Ec.	Dis.
	13	5		I.*	Oc.	Dis.
	13	12	59.0	IV.*	Ec.	Re.
	16	35	17.5	I.	Ec.	Re.
	23	58		II.	Tr.	In.
4	2	26		II.	Sh.	In.
	2	51		II.	Tr.	Eg.
	5	16		II.	Sh.	Eg.
	10	26		I.*	Tr.	In.
	11	39		I.*	Sh.	In.
	12	45		I.*	Tr.	Eg.
	13	58		I.	Sh.	Eg.
	22	46		III.	Tr.	In.
5	2	21		III.	Tr.	Eg.
	3	46		III.	Sh.	In.
	7	15		III.	Sh.	Eg.
	7	34		I.*	Oc.	Dis.
	11	4	6.5	I.*	Ec.	Re.
	19	5		II.	Oc.	Dis.
6	0	20	57.7	II.	Ec.	Re.
	4	54		I.	Tr.	In.
	6	8		I.	Sh.	In.
	7	13		I.	Tr.	Eg.
	8	27		I.*	Sh.	Eg.
7	2	2		I.	Oc.	Dis.
	5	32	50.8	I.	Ec.	Re.
	13	15		II.*	Tr.	In.
	15	44		II.	Sh.	In.
	16	7		II.	Tr.	Eg.
	18	34		II.	Sh.	Eg.
	23	22		I.	Tr.	In.
8	0	37		I.	Sh.	In.
	1	41		I.	Tr.	Eg.
	2	55		I.	Sh.	Eg.
	12	38		III.*	Oc.	Dis.
	16	13		III.	Oc.	Re.
	17	47	41.8	III.	Ec.	Dis.
	20	30		I.	Oc.	Dis.
	21	6	43.8	III.	Ec.	Re.
9	0	1	38.3	I.	Ec.	Re.
	8	21		II.*	Oc.	Dis.
	13	38	31.0	II.	Ec.	Re.
	17	50		I.	Tr.	In.
	19	5		I.	Sh.	In.
	20	9		I.	Tr.	Eg.
	21	24		I.	Sh.	Eg.
10	14	58		I.	Oc.	Dis.
	18	30	21.1	I.	Ec.	Re.
11	2	31		II.	Tr.	In.
	4	32		IV.	Tr.	In.
	5	3		II.	Sh	In.
	5	24		II.	Tr.	Eg
	7	53		II.*	Sh	Eg
	9	7		IV.*	Tr	Eg
11	12	18		I.*	Tr.	In.
	13	34		I.	Sh.	In.
	14	37		I.	Tr.	Eg.
	15	53		I.	Sh.	Eg.
	16	33		IV.	Sh.	In.
	20	47		IV.	Sh.	Eg.
12	2	37		III.	Tr.	In.
	6	12		III.	Tr.	Eg.
	7	45		III.*	Sh.	In.
	9	27		I.*	Oc.	Dis.
	11	13		III.*	Sh.	Eg.
	12	59	11.0	I.	Ec.	Re.
	21	37		II.	Oc.	Dis.
13	2	56	12.8	II.	Ec.	Re.
	6	47		I.	Tr.	In.
	8	3		I.*	Sh.	In.
	9	6		I.*	Tr.	Eg.
	10	22		I.*	Sh.	Eg.
14	3	55		I.	Oc.	Dis.
	7	27	55.4	I.	Ec.	Re.
	15	48		II.	Tr.	In.
	18	21		II.	Sh.	In.
	18	41		II.	Tr.	Eg.
	21	11		II.	Sh.	Eg.
15	1	15		I.	Tr.	In.
	2	31		I.	Sh.	In.
	3	34		I.	Tr.	Eg.
	4	50		I.	Sh.	Eg.
	16	32		III.	Oc.	Dis.
	20	7		III.	Oc.	Re.
	21	47	43.0	III.	Ec.	Dis.
	22	24		I.	Oc.	Dis.
16	1	6	3.0	III.	Ec.	Re.
	1	56	44.3	I.	Ec.	Re.
	10	54		II.*	Oc.	Dis.
	16	13	44.8	II.	Ec.	Re.
	19	44		I.	Tr.	In.
	21	0		I.	Sh.	In.
	22	3		I.	Tr.	Eg.
	23	19		I.	Sh.	Eg.
17	16	53		I.	Oc.	Dis.
	20	25	27.7	I.	Ec.	Re.
18	5	6		II.	Tr.	In.
	7	40		II.*	Sh.	In.
	7	59		II.*	Tr.	Eg.
	10	30		II.*	Sh.	Eg.
	14	12		I.	Tr.	In.
	15	29		I.	Sh.	In.
	16	31		I.	Tr.	Eg.
	17	48		I.	Sh.	Eg.
19	6	32		III.	Tr.	In.
	10	8		III.*	Tr.	Eg.
	11	21		I.*	Oc.	Dis.
	11	44		III.*	Sh.	In.
	14	47		IV.	Oc.	Dis.
	14	54	17.1	I	Ec	Re.
	15	12		III	Sh	Eg.
	19	23		IV.	Oc.	Re.
20	0	11		II	Oc	Dis
	3	13	10.4	IV	Ec	Dis.
	5	31	20.0	II	Ec	Re
	7	10	34.8	IV.	Ec	Re.
	8	41		I.*	Tr.	In
	9	58		I.*	Sh	In.
	11	0		I.*	Tr	Eg.
	12	17		I.*	Sh	Eg
21	5	50		I	Oc	Dis.
	9	23	3.0	I.*	Ec	Re.
	18	25		II	Tr	In
21	20	58		II.	Sh.	In.
	21	17		II.	Tr.	Eg.
	23	47		II.	Sh.	Eg.
22	3	10		I.	Tr.	In.
	4	26		I.	Sh.	In.
	5	29		I.	Tr.	Eg.
	6	45		I.	Sh.	Eg.
	20	30		III.	Oc.	Dis.
23	0	6		III.	Oc.	Re.
	0	19		I.	Oc.	Dis.
	1	47	25.0	III.	Ec.	Dis.
	3	51	52.5	I.	Ec.	Re.
	5	5	3.5	III.	Ec.	Re.
	13	29		II.	Oc.	Dis.
	18	48	48.3	II.	Ec.	Re.
	21	39		I.	Tr.	In.
	22	55		I.	Sh.	In.
	23	58		I.	Tr.	Eg.
24	1	14		I.	Sh.	Eg.
	18	48		I.	Oc.	Dis.
	22	20	36.0	I.	Ec.	Re.
25	7	43		II.*	Tr.	In.
	10	17		II.*	Sh.	In.
	10	36		II.*	Tr.	Eg.
	13	6		II.	Sh.	Eg.
	16	8		I.	Tr.	In.
	17	24		I.	Sh.	In.
	18	27		I.	Tr.	Eg.
	19	43		I.	Sh.	Eg.
26	10	31		III.*	Tr.	In.
	13	17		I.	Oc.	Dis.
	14	7		III.	Tr.	Eg.
	15	43		III	Sh.	In.
	16	49	27.0	I.	Ec.	Re.
	19	10		III.	Sh.	Eg.
27	2	47		II.	Oc.	Dis.
	8	6	19.1	II.*	Ec.	Re.
	10	36		I.*	Tr.	In.
	11	53		I.*	Sh.	In.
	12	55		I.	Tr.	Eg.
	14	12		I.	Sh.	Eg.
	22	22		IV.	Tr.	In.
28	2	58		IV.	Tr.	Eg.
	7	46		I.*	Oc.	Dis.
	10	34		IV.*	Sh.	In.
	11	18	12.1	I.*	Ec.	Re.
	14	43		IV.	Sh	Eg.
	21	3		II.	Tr.	In.
	23	35		II.	Sh.	In.
	23	56		II.	Tr.	Eg.
29	2	24		II.	Sh.	Eg.
	5	5		I.	Tr.	In
	6	21		I.	Sh	In.
	7	24		I.	Tr.	Eg.
	8	40		I.*	Sh	Eg.
30	0	32		III	Oc.	Dis.
	2	15		I.	Oc.	Dis.
	4	7		III.	Oc.	Re.
	5	47	1.8	I.	Ec.	Re.
	5	47	19.5	III.	Ec	Dis
	9	4	15.3	III.*	Ec	Re.
	16	6		II.	Oc.	Dis.
	21	23	44.3	II.	Ec.	Re.
	23	34		I.	Tr.	In.
31	0	50		I.	Sh.	In.
	1	53		I.	Tr.	Eg.
	3	9		I	Sh.	Eg
	20	44		I.	Oc.	Dis.

NOTE.—In., denotes ingress, Eg., egress, Dis., disappearance, Re., reappearance, Ec., eclipse.
Oc., denotes occultation, Tr., transit of the satellite, Sh., transit of the shadow, * Visible at Washington.

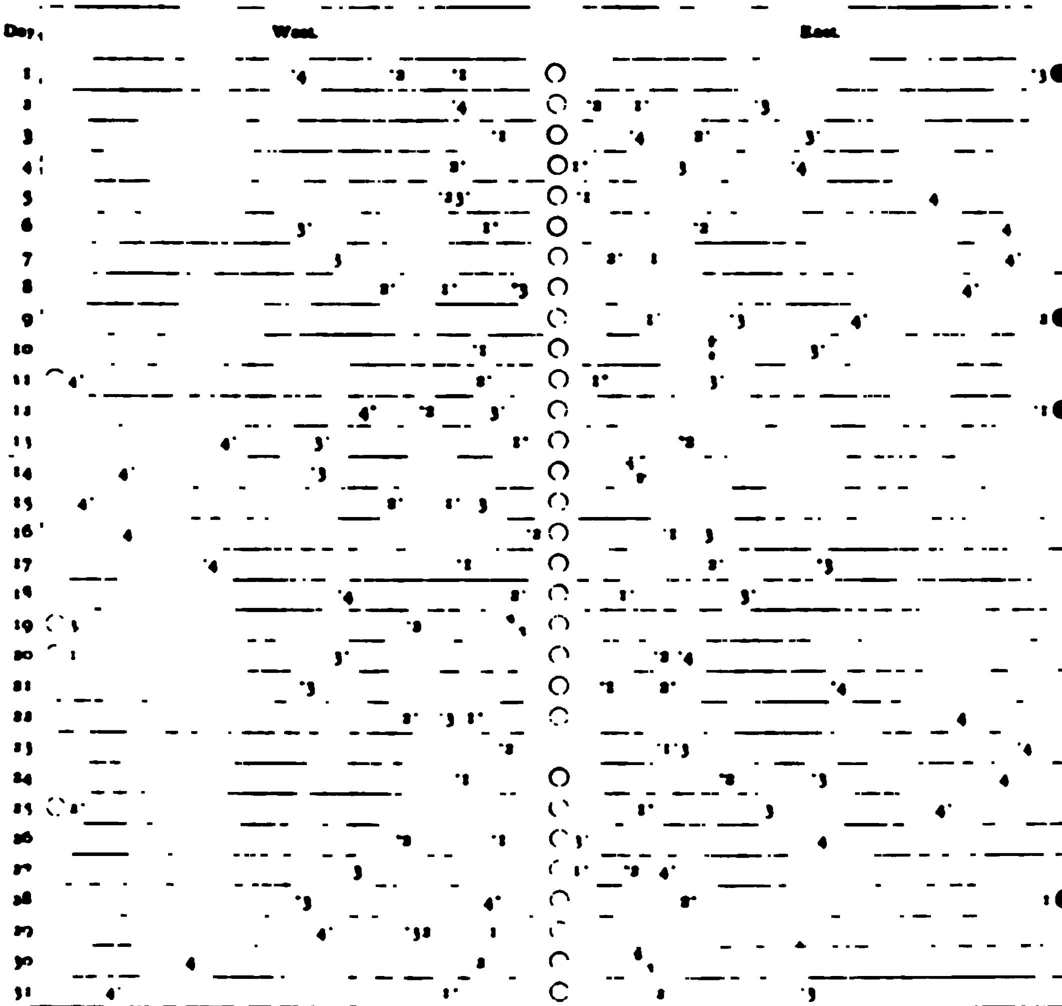
WASHINGTON MEAN TIME.

MAY

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 10h 00m for an Inverting Telescope.



WASHINGTON MEAN TIME.

JUNE.

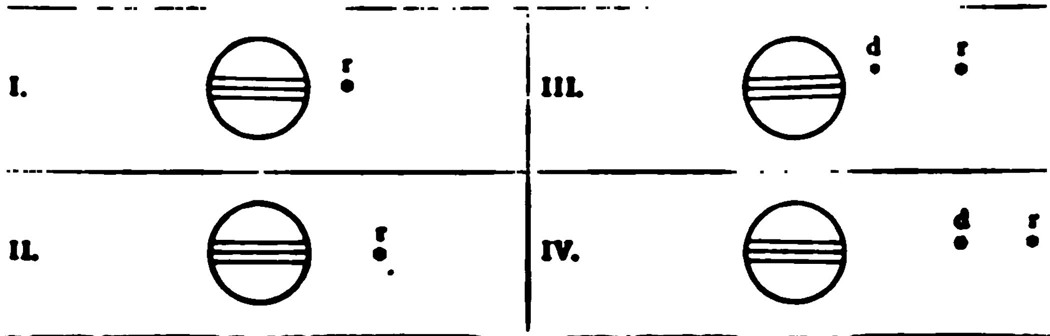
d	h	m	s			
1	0	15	45.5	I.	Ec.	Re.
	10	22		II.*	Tr.	In.
	12	54		II.	Sh.	In.
	13	15		II.	Tr.	Eg.
	15	43		II.	Sh.	Eg.
	18	3		I.	Tr.	In.
	19	19		I.	Sh.	In.
	20	22		I.	Tr.	Eg.
	21	38		I.	Sh.	Eg.
2	14	35		III.	Tr.	In.
	15	13		I.	Oc.	Dis.
	18	10		III.	Tr.	Eg.
	18	44	36.7	I.	Ec.	Re.
	19	42		III.	Sh.	In.
	23	9		III.	Sh.	Eg.
3	5	25		II.	Oc.	Dis.
	10	41	9.8	II.*	Ec.	Re.
	12	32		I.	Tr.	In.
	13	47		I.	Sh.	In.
	14	51		I.	Tr.	Eg.
	16	6		I.	Sh.	Eg.
4	9	42		I.*	Oc.	Dis.
	13	13	22.1	I.	Ec.	Re.
	23	42		II.	Tr.	In.
5	2	12		II.	Sh.	In.
	2	35		II.	Tr.	Eg.
	5	1		II.	Sh.	Eg.
	7	1		I.	Tr.	In.
	8	16		I.*	Sh.	In.
	9	4		IV.*	Oc.	Dis.
	9	20		I.*	Tr.	Eg.
	10	35		I.*	Sh.	Eg.
	13	40		IV.	Oc.	Re.
	21	16	19.4	IV.	Ec.	Dis.
6	1	7	57.2	IV.	Ec.	Re.
	4	11		I.	Oc.	Dis.
	4	37		III.	Oc.	Dis.
	7	42	12.1	I.	Ec.	Re.
	8	12		III.*	Oc.	Re.
	9	46	43.2	III.*	Ec.	Dis.
	13	2	55.2	III.	Ec.	Re.
	18	44		II.	Oc.	Dis.
	23	58	31.8	II.	Ec.	Re.
7	1	30		I.	Tr.	In.
	2	45		I.	Sh.	In.
	3	49		I.	Tr.	Eg.
	5	4		I.	Sh.	Eg.
	22	40		I.	Oc.	Dis.
8	2	10	55.6	I.	Ec.	Re.
	13	3		II.	Tr.	In.
	15	31		II.	Sh.	In.
	15	56		II.	Tr.	Eg.
	18	20		II.	Sh.	Eg.
	20	0		I.	Tr.	In.
	21	14		I.	Sh.	In
	22	18		I.	Tr.	Eg.
	23	32		I.	Sh.	Eg
9	17	10		I.	Oc.	Dis.
	18	42		III.	Tr.	In.
	20	39	46.8	I.	Ec	Re.
	22	17		III.	Tr.	Eg.
	23	42		III.	Sh	In.
10	3	8		III.	Sh	Eg.
	8	4		II.*	Oc.	Dis.
	13	15	52.2	II.	Ec	Re.
	14	29		I.	Tr	In.
	15	42		I	Sh	In.
10	16	48		I.	Tr.	Eg.
	18	1		I.	Sh.	Eg.
11	11	39		I.	Oc.	Dis.
	15	8	32.0	I.	Ec.	Re.
12	2	24		II.	Tr.	In.
	4	50		II.	Sh.	In.
	5	17		II.	Tr.	Eg.
	7	38		II.	Sh.	Eg.
	8	58		I.*	Tr.	In.
	10	11		I.*	Sh.	In.
	11	17		I.	Tr.	Eg.
	12	30		I.	Sh.	Eg.
13	6	9		I.	Oc.	Dis.
	8	45		III.*	Oc.	Dis.
	9	37	22.2	I.*	Ec.	Re.
	12	20		III.	Oc.	Re.
	13	46	2.1	III.	Ec.	Dis.
	17	1		IV.	Tr.	In.
	17	1	29.5	III.	Ec.	Re.
	21	24		II.	Oc.	Dis.
	21	35		IV.	Tr.	Eg.
14	2	33	10.6	II.	Ec.	Re.
	3	27		I.	Tr.	In.
	4	36		IV.	Sh.	In.
	4	39		I.	Sh.	In.
	5	46		I.	Tr.	Eg.
	6	58		I.	Sh.	Eg.
	8	39		IV.*	Sh.	Eg.
15	0	38		I.	Oc.	Dis.
	4	6	5.5	I.	Ec.	Re.
	15	46		II.	Tr.	In.
	18	8		II.	Sh.	In.
	18	39		II.	Tr.	Eg.
	20	57		II.	Sh.	Eg.
	21	57		I.	Tr.	In.
	23	8		I.	Sh.	In.
16	0	16		I.	Tr.	Eg.
	1	27		I.	Sh.	Eg.
	19	8		I.	Oc.	Dis.
	22	34	56.5	I.	Ec.	Re.
	22	52		III.	Tr.	In.
17	2	27		III.	Tr.	Eg.
	3	42		III.	Sh.	In.
	7	7		III.	Sh.	Eg.
	10	44		II.*	Oc.	Dis.
	15	50	26.2	II.	Ec.	Re.
	16	26		I.	Tr.	In.
	17	37		I.	Sh.	In.
	18	45		I.	Tr.	Eg.
	19	56		I.	Sh.	Eg.
18	13	37		I.	Oc.	Dis.
	17	3	41.2	I.	Ec.	Re.
19	5	7		II.	Tr.	In.
	7	27		II.	Sh.	In.
	8	0		II.*	Tr.	Eg.
	10	15		II.*	Sh.	Eg.
	10	56		I.	Tr.	In.
	12	6		I.	Sh.	In.
	13	15		I.	Tr.	Eg
	14	24		I.	Sh.	Eg.
20	8	7		I.	Oc.	Dis.
	11	32	31.1	I	Ec.	Re.
	12	57		III	Oc.	Dis
	16	31		III	Oc	Re
	17	45	33.4	III	Ec.	Dis
	21	0	15.6	III.	Ec	Re.
21	0	5		II	Oc	Dis.
21	5	7	41.0	II.	Ec.	Re.
	5	25		I.	Tr.	In.
	6	34		I.	Sh.	In.
	7	44		I.	Tr.	Eg.
	8	53		I.*	Sh.	Eg.
22	2	36		I.	Oc.	Dis.
	4	6		IV.	Oc.	Dis.
	6	1	14.2	I.	Ec.	Re.
	8	40		IV.*	Oc.	Re.
	15	19	48.4	IV.	Ec.	Dis.
	18	29		II.	Tr.	In.
	19	5	17.6	IV.	Ec.	Re.
	20	46		II.	Sh.	In.
	21	22		II.	Tr.	Eg.
	23	34		II.	Sh.	Eg.
	23	55		I.	Tr.	In.
23	1	3		I.	Sh.	In.
	2	14		I.	Tr.	Eg.
	3	28		I.	Sh.	Eg.
	21	6		I.	Oc.	Dis.
24	0	30	4.8	I.	Ec.	Re.
	3	5		III.	Tr.	In.
	6	39		III.	Tr.	Eg.
	7	41		III.	Sh.	In.
	11	5		III.	Sh.	Eg.
	13	26		II.	Oc.	Dis.
	18	24		I.	Tr.	In.
	18	24	52.5	II.	Ec.	Re.
	19	31		I.	Sh.	In.
	20	43		I.	Tr.	Eg.
	21	50		I.	Sh.	Eg.
25	15	36		I.	Oc.	Dis.
	18	58	49.3	I.	Ec.	Re.
26	7	52		II.*	Tr.	In.
	10	4		II.*	Sh.	In.
	10	44		II.	Tr.	Eg.
	12	52		II.	Sh.	Eg.
	12	54		I.	Tr.	In.
	14	0		I.	Sh.	In.
	15	13		I.	Tr.	Eg.
	16	19		I.	Sh.	Eg.
27	10	5		I.*	Oc.	Dis.
	13	27	39.0	I.	Ec.	Re.
	17	11		III.	Oc.	Dis.
	20	45		III.	Oc.	Re.
	21	45	8.1	III.	Ec.	Dis.
28	0	59	4.3	III.	Ec.	Re.
	2	47		II.	Oc.	Dis.
	7	23		I.	Tr.	In.
	7	42	3.7	II.	Ec.	Re.
	8	29		I.*	Sh.	In.
	9	42		I.*	Tr.	Eg.
	10	47		I.	Sh.	Eg.
29	4	35		I.	Oc.	Dis.
	7	56	21.3	I.	Ec.	Re.
	21	14		II.	Tr.	In.
	23	23		II.	Sh.	In.
30	0	7		II	Tr.	Eg.
	1	53		I	Tr.	In.
	2	11		II.	Sh.	Eg.
	2	57		I.	Sh.	In.
	4	12		I.	Tr.	Eg.
	5	15		I.	Sh.	Eg.
	12	20		IV.	Tr.	In.
	16	51		IV.	Tr.	Eg.
	22	38		IV.	Sh	In.
	23	5		I	Oc	Dis.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance, Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

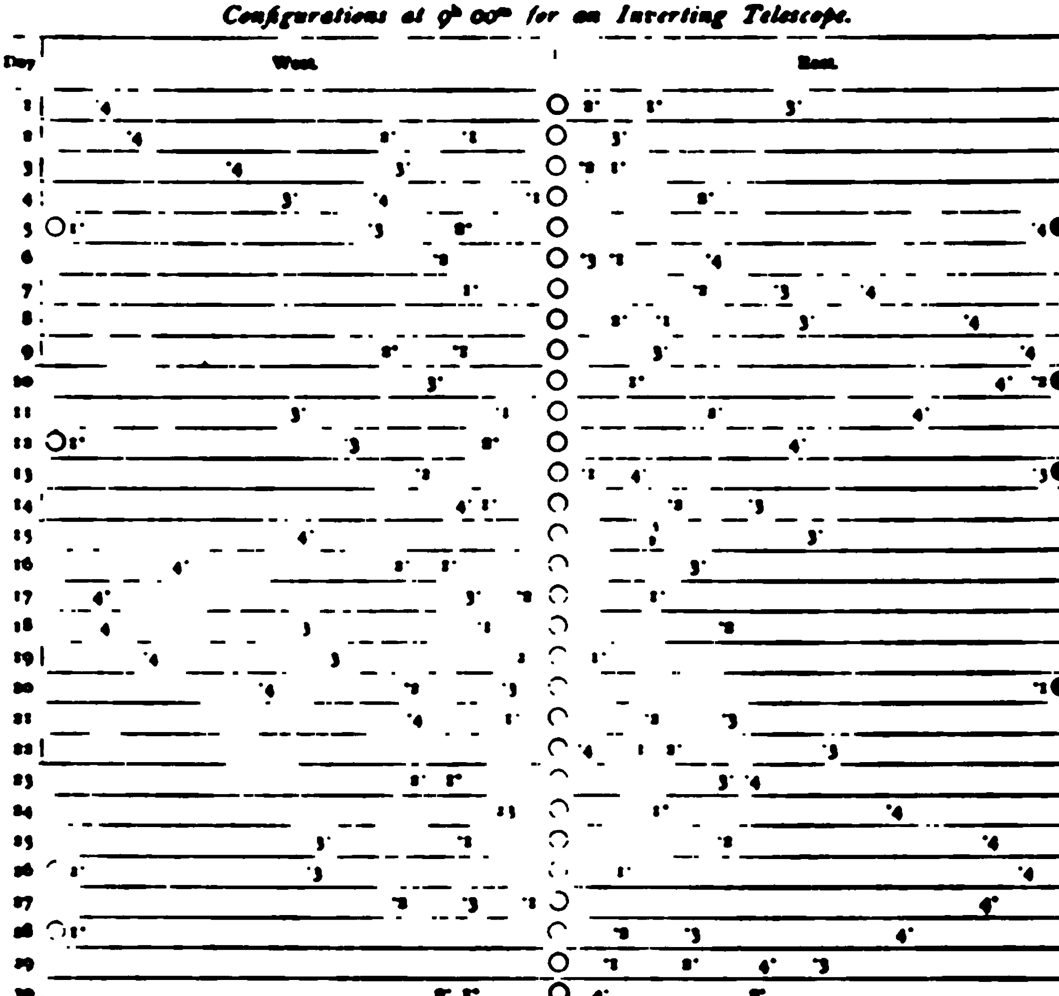
WASHINGTON MEAN TIME.

JUNE.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 9h 00m for an Inverting Telescope.



WASHINGTON MEAN TIME.

JULY.

d	h	m	s	Sat.	Phen.	
1	2	25	11.4	I.	Ec.	Re.
	2	36		IV.	Sh.	Eg.
	7	20		III.	Tr.	In.
	10	53		III.	Tr.	Eg.
	11	40		III.	Sh.	In.
	15	3		III.	Sh.	Eg.
	16	8		II.	Oc.	Dis.
	20	23		I.	Tr.	In.
	20	59	11.2	II.	Ec.	Re.
	21	26		I.	Sh.	In.
	22	42		I.	Tr.	Eg.
	23	44		I.	Sh.	Eg.
2	17	35		I.	Oc.	Dis.
	20	53	55.4	I.	Ec.	Re.
3	10	38		II.	Tr.	In.
	12	42		II.	Sh.	In.
	13	29		II.	Tr.	Eg.
	14	52		I.	Tr.	In.
	15	29		II.	Sh.	Eg.
	15	55		I.	Sh.	In.
	17	12		I.	Tr.	Eg.
	18	13		I.	Sh.	Eg.
4	12	5		I.	Oc.	Dis.
	15	22	44.6	I.	Ec.	Re.
	21	29		III.	Oc.	Dis.
5	1	2		III.	Oc.	Re.
	1	45	18.8	III.	Ec.	Dis.
	4	58	27.8	III.	Ec.	Re.
	5	30		II.	Oc.	Dis.
	9	22		I.*	Tr.	In.
	10	16	18.6	II.	Ec.	Re.
	10	23		I.	Sh.	In.
	11	41		I.	Tr.	Eg.
	12	41		I.	Sh.	Eg.
6	6	35		I.	Oc.	Dis.
	9	51	26.3	I.	Ec.	Re.
7	0	1		II.	Tr.	In.
	2	0		II.	Sh.	In.
	2	53		II.	Tr.	Eg.
	3	52		I.	Tr.	In.
	4	47		II.	Sh.	Eg.
	4	52		I.	Sh.	In.
	6	11		I.	Tr.	Eg.
	7	10		I.	Sh.	Eg.
8	1	5		I.	Oc.	Dis.
	4	20	15.7	I	Ec.	Re.
	11	37		III.	Tr.	In.
	15	10		III.	Tr.	Eg.
	15	39		III.	Sh.	In.
	18	52		II.	Oc.	Dis.
	19	1		III.	Sh.	Eg.
	22	22		I.	Tr.	In.
	23	21		I.	Sh.	In.
	23	33	22.3	II.	Ec.	Re.
	23	43		IV.	Oc.	Dis.
9	0	41		I.	Tr.	Eg.
	1	39		I.	Sh.	Eg.
	4	12		IV.	Oc.	Re.
	9	22	40.0	IV.	Ec.	Dis.
	13	1	37.8	IV.	Ec.	Re.
	19	35		I.	Oc	Dis.
	22	48	59.2	I.	Ec	Re.
10	13	24		II.	Tr.	In.
	15	19		II.	Sh.	In.
	16	16		II.	Tr.	Eg.
	16	52		I.	Tr.	In.
	17	49		I	Sh.	In.
	18	6		II.	Sh	Eg.

d	h	m	s	Sat.	Phen.	
10	19	11		I.	Tr.	Eg.
	20	7		I.	Sh.	Eg.
11	14	5		I.	Oc.	Dis.
	17	17	47.5	I.	Ec.	Re.
12	1	48		III.	Oc.	Dis.
	5	21		III.	Oc.	Re.
	5	44	55.6	III.	Ec.	Dis.
	8	14		II.*	Oc.	Dis.
	8	57	16.4	III.*	Ec.	Re.
	11	21		I.	Tr.	In.
	12	18		I.	Sh.	In.
	12	50	26.2	II.	Ec.	Re.
	13	40		I.	Tr.	Eg.
	14	36		I.	Sh.	Eg.
13	8	35		I.*	Oc.	Dis.
	11	46	28.5	I.	Ec.	Re.
14	2	48		II.	Tr.	In.
	4	38		II.	Sh.	In.
	5	40		II.	Tr.	Eg.
	5	51		I.	Tr.	In.
	6	46		I.	Sh.	In.
	7	25		II.	Sh.	Eg.
	8	10		I.*	Tr.	Eg.
	9	4		I.*	Sh.	Eg.
15	3	5		I.	Oc.	Dis.
	6	15	17.0	I.	Ec.	Re.
	15	56		III.	Tr.	In.
	19	29		III.	Tr.	Eg.
	19	37		III.	Sh.	In.
	21	37		II.	Oc.	Dis.
	22	59		III.	Sh.	Eg.
16	0	21		I.	Tr.	In.
	1	15		I.	Sh.	In.
	2	7	26.8	II.	Ec.	Re.
	2	40		I.	Tr.	Eg.
	3	33		I.	Sh.	Eg.
	21	35		I.	Oc.	Dis.
17	0	43	59.5	I.	Ec.	Re.
	8	7		IV.*	Tr.	In.
	12	35		IV.	Tr.	Eg.
	16	12		II.	Tr.	In.
	16	39		IV.	Sh.	In.
	17	56		II.	Sh.	In.
	18	51		I.	Tr.	In.
	19	3		II.	Tr.	Eg.
	19	44		I.	Sh.	In.
	20	31		IV.	Sh.	Eg.
	20	43		II.	Sh.	Eg.
	21	10		I.	Tr.	Eg.
	22	2		I.	Sh.	Eg.
18	16	5		I.	Oc.	Dis.
	19	12	47.3	I.	Ec.	Re.
19	6	9		III.	Oc.	Dis.
	9	41		III.	Oc.	Re.
	9	44	38.3	III.	Ec.	Dis.
	10	59		II.	Oc.	Dis.
	12	56	10.3	III.	Ec.	Re.
	13	21		I.	Tr.	In.
	14	12		I.	Sh.	In.
	15	24	27.3	II.	Ec.	Re.
	15	40		I.	Tr.	Eg.
	16	30		I.	Sh.	Eg.
20	10	35		I.	Oc.	Dis.
	13	41	27.2	I.	Ec	Re.
21	5	36		II.	Tr.	In.
	7	15		II.	Sh.	In
	7	51		I.	Tr.	In.
	8	28		II.*	Tr.	Eg.

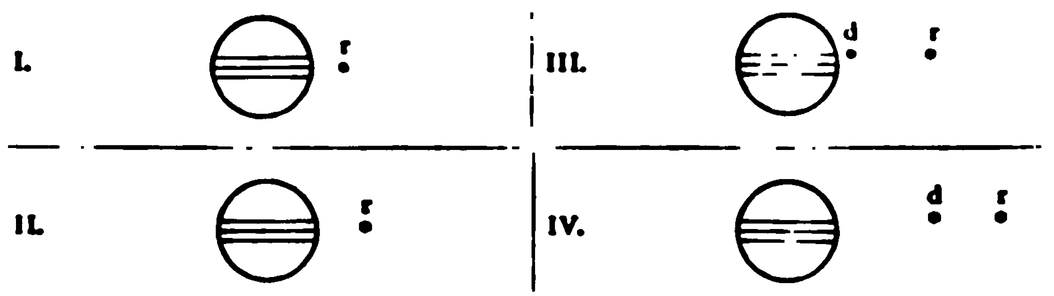
d	h	m	s	Sat.	Phen.	
21	8	41		I.*	Sh.	In.
	10	2		II.	Sh.	Eg.
	10	10		I.	Tr.	Eg.
	10	59		I.	Sh.	Eg.
22	5	5		I.	Oc.	Dis.
	8	10	14.8	I.*	Ec.	Re.
	20	18		III.	Tr.	In.
	23	37		III.	Sh.	In.
	23	49		III.	Tr.	Eg.
23	0	22		II.	Oc.	Dis.
	2	21		I.	Tr.	In.
	2	58		III.	Sh.	Eg.
	3	9		I.	Sh.	In.
	4	40		I.	Tr.	Eg.
	4	41	25.2	II.	Ec.	Re.
	5	27		I.	Sh.	Eg.
	23	35		I.	Oc.	Dis.
24	2	38	56.4	I.	Ec.	Re.
	19	0		II.	Tr.	In.
	20	33		II.	Sh.	In.
	20	51		I.	Tr.	In.
	21	38		I.	Sh.	In.
	21	51		II.	Tr.	Eg.
	23	10		I.	Tr.	Eg.
	23	20		II.	Sh.	Eg.
	23	56		I.	Sh.	Eg.
25	18	6		I.	Oc.	Dis.
	19	46		IV.	Oc.	Dis.
	21	7	43.3	I.	Ec.	Re.
26	0	10		IV.	Oc.	Re.
	3	25	24.9	IV.	Ec.	Dis.
	6	57	27.3	IV.	Ec.	Re.
	10	32		III.	Oc.	Dis.
	13	45		II.	Oc.	Dis.
	15	21		I.	Tr.	In.
	16	7		I.	Sh.	In.
	16	54	30.3	III.	Ec.	Re.
	17	40		I.	Tr.	Eg.
	17	58	22.3	II.	Ec.	Re.
	18	25		I.	Sh.	Eg.
27	12	36		I.	Oc.	Dis.
	15	36	22.1	I.	Ec.	Re.
28	8	25		II.*	Tr.	In.
	9	51		I.	Tr.	In.
	9	52		II.	Sh.	In.
	10	35		I.	Sh.	In.
	11	16		II.	Tr.	Eg.
	12	10		I.	Tr.	Eg.
	12	39		II.	Sh.	Eg.
	12	53		I.	Sh.	Eg.
29	7	6		I.	Oc.	Dis.
	10	5	8.7	I.	Ec.	Re.
30	0	41		III.	Tr.	In.
	3	8		II.	Oc.	Dis.
	3	36		III.	Sh.	In.
	4	11		III.	Tr.	Eg.
	4	21		I.	Tr.	In.
	5	4		I.	Sh.	In.
	6	40		I.	Tr.	Eg.
	6	56		III.	Sh.	Eg
	7	15	18.1	II.	Ec.	Re
	7	22		I.	Sh.	Eg
31	1	36		I.	Oc.	Dis
	4	33	49.1	I.	Ec.	Re.
	21	49		II.	Tr.	In
	22	51		I.	Tr.	In.
	23	11		II.	Sh.	In.
	23	32		I.	Sh.	In.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse. Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

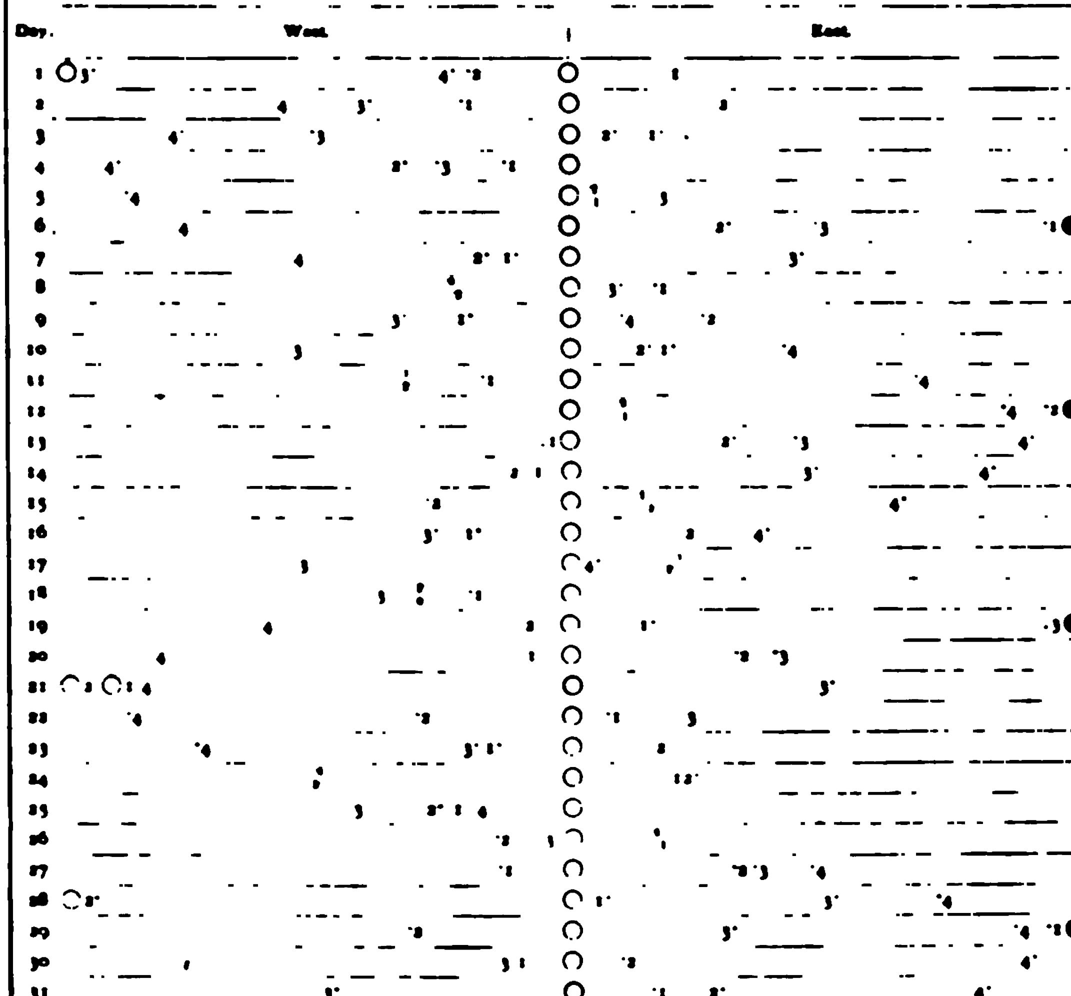
WASHINGTON MEAN TIME.

JULY

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 8h 30m for an Inverting Telescope.



WASHINGTON MEAN TIME.

AUGUST.

d	h	m	s	Sat.	Phen.	
1	0	40		II.	Tr.	Eg.
	1	10		I.	Tr.	Eg.
	1	50		I.	Sh.	Eg.
	1	57		II.	Sh.	Eg.
	20	7		I.	Oc.	Dis.
	23	2	35.0	I.	Ec.	Re.
2	14	55		III.	Oc.	Dis.
	16	31		II.	Oc.	Dis.
	17	22		I.	Tr.	In.
	18	1		I.	Sh.	In.
	19	41		I.	Tr.	Eg.
	20	19		I.	Sh.	Eg.
	20	32	12.8	II.	Ec.	Re.
	20	52	41.3	III.	Ec.	Re.
3	4	20		IV.	Tr.	In.
	8	40		IV.	Tr.	Eg.
	10	41		IV.	Sh.	In.
	14	25		IV.	Sh.	Eg.
	14	37		I.	Oc.	Dis.
	17	31	12.7	I.	Ec.	Re.
4	11	13		II.	Tr.	In.
	11	52		I.	Tr.	In.
	12	29		II.	Sh.	In.
	12	29		I.	Sh.	In.
	14	3		II.	Tr.	Eg.
	14	11		I.	Tr.	Eg.
	14	47		I.	Sh.	Eg.
	15	15		II.	Sh.	Eg.
5	9	7		I.	Oc.	Dis
	11	59	58.0	I.	Ec.	Re.
6	5	5		III.	Tr.	In.
	5	54		II.	Oc.	Dis.
	6	22		I.	Tr.	In.
	6	58		I.	Sh.	In.
	7	35		III.*	Sh.	In.
	8	35		III.	Tr.	Eg.
	8	41		I.	Tr.	Eg.
	9	16		I.	Sh.	Eg.
	9	49	6.2	II.	Ec.	Re.
	10	54		III.	Sh.	Eg.
7	3	37		I.	Oc.	Dis.
	6	28	37.2	I.	Ec.	Re.
8	0	37		II.	Tr.	In.
	0	52		I.	Tr.	In.
	1	27		I.	Sh.	In.
	1	48		II.	Sh.	In.
	3	11		I.	Tr.	Eg.
	3	27		II.	Tr.	Eg.
	3	45		I.	Sh.	Eg.
	4	34		II.	Sh.	Eg.
	22	8		I.	Oc.	Dis.
9	0	57	22.0	I.	Ec.	Re.
	19	17		II.	Oc.	Dis.
	19	21		III.	Oc.	Dis.
	19	22		I.	Tr.	In.
	19	55		I.	Sh.	In.
	21	41		I.	Tr.	Eg.
	22	13		I.	Sh.	Eg.
	23	5	58.2	II.	Ec.	Re.
10	0	51	2.0	III.	Ec.	Re.
	16	38		I.	Oc.	Dis.
	19	25	58.4	I.	Ec.	Re.
11	13	52		I.	Tr.	In.
	14	3		II.	Tr.	In.
	14	24		I.	Sh.	In.
	15	6		II.	Sh.	In.
	16	10		IV.	Oc.	Dis.
	16	11		I.	Tr.	Eg.
	16	42		I.	Sh.	Eg.
	16	52		II.	Tr.	Eg.
	17	52		II.	Sh.	Eg.
	20	26		IV.	Oc.	Re.
	21	28	15.2	IV.	Ec.	Dis.
12	0	52	53.6	IV.	Ec.	Re.
	11	8		I.	Oc.	Dis.
	13	54	42.3	I.	Ec.	Re.
13	8	22		I.	Tr.	In.
	8	41		II.	Oc.	Dis.
	8	52		I.	Sh.	In.
	9	31		III.	Tr.	In.
	10	41		I.	Tr.	Eg.
	11	10		I.	Sh.	Eg.
	11	34		III.	Sh.	In.
	12	22	48.8	II.	Ec.	Re.
	12	59		III.	Tr.	Eg.
	14	52		III.	Sh.	Eg.
14	5	39		I.	Oc.	Dis.
	8	23	20.4	I.	Ec.	Re.

THE SATELLITES OF JUPITER

ARE NOT VISIBLE FROM AUGUST 15 UNTIL OCTOBER 22,

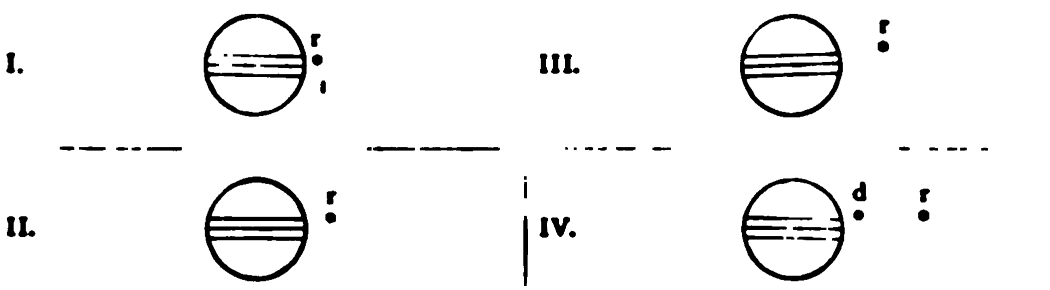
JUPITER BEING TOO NEAR TO THE SUN.

NOTE.—In., denotes ingress; Eg., egress; Dis., disappearance; Re., reappearance; Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

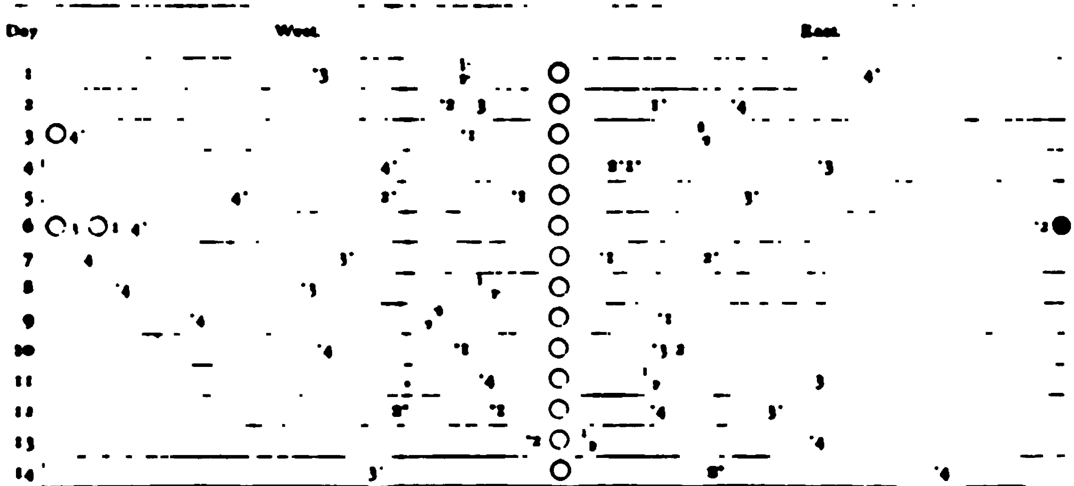
WASHINGTON MEAN TIME.

AUGUST

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 7h 30m for an Inverting Telescope.



WASHINGTON MEAN TIME.

OCTOBER.

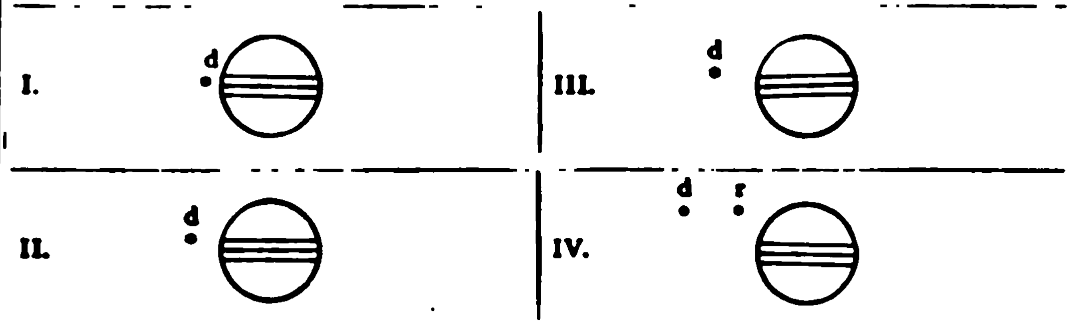
d	h	m	s			
12	13	0		I.	Sh.	In.
	13	29		I.	Tr.	In.
	15	17		I.	Sh.	Eg.
	15	47		I.	Tr.	Eg.
	19	31	53.1	II.	Ec.	Dis.
	23	11		II.	Oc.	Re.
13	9	32	6.5	III.	Ec.	Dis.
	10	21	28.2	I.	Ec.	Dis.
	13	7		I.	Oc.	Re.
	14	40		III.	Oc.	Re.
14	7	28		I.	Sh.	In.
	7	59		I.	Tr.	In.
	9	45		I.	Sh.	Eg.
	10	17		I.	Tr.	Eg.
	14	33		II.	Sh.	In.
	15	35		II.	Tr.	In.
	17	16		II.*	Sh.	Eg.
	18	18		II.	Tr.	Eg.
15	4	49	58.5	I.	Ec.	Dis.
	7	37		I.	Oc.	Re.
16	1	56		I.	Sh.	In.
	2	29		I.	Tr.	In.
	4	13		I.	Sh.	Eg.
	4	46		I.	Tr.	Eg.
	8	48	48.6	II.	Ec.	Dis.
	12	34		II.	Oc.	Re.
	23	18	24.4	I.	Ec.	Dis.
	23	19		III.	Sh	In.
17	1	33		III.	Tr.	In.
	2	7		I.	Oc.	Re.
	2	29		III.	Sh.	Eg.
	4	44		III.	Tr.	Eg.
	20	25		I.	Sh.	In.
	20	59		I.	Tr.	In
	21	35	17.5	IV.	Ec.	Dis.
	22	42		I.	Sh.	Eg.
	23	16		I.	Tr.	Eg.
18	0	25	12.9	IV.	Ec	Re
	2	51		IV.	Oc	Dis.
	3	51		II.	Sh	In.
	5	0		II	Tr.	In.
	6	4		IV.	Oc.	Re.
18	6	33		II.	Sh.	Eg.
	7	42		II.	Tr.	Eg.
	17	46	55.0	I.*	Ec.	Dis.
	20	37		I.	Oc.	Re.
19	14	53		I.	Sh.	In.
	15	29		I.	Tr.	In.
	17	10		I.*	Sh.	Eg.
	17	46		I.*	Tr.	Eg.
	22	5	51.1	II.	Ec.	Dis.
20	1	57		II.	Oc.	Re.
	12	15	18.5	I.	Ec.	Dis.
	13	30	27.7	III.	Ec.	Dis.
	15	7		I.	Oc.	Re.
	19	4		III.	Oc.	Re.
21	9	21		I.	Sh.	In.
	9	59		I.	Tr.	In.
	11	38		I.	Sh.	Eg.
	12	16		I.	Tr.	Eg.
	17	9		II.*	Sh.	In.
	18	24		II.	Tr.	In.
	19	51		II.	Sh.	Eg.
	21	6		II.	Tr.	Eg.
22	6	43	47.0	I.	Ec.	Dis.
	9	37		I.	Oc.	Re.
23	3	50		I.	Sh.	In.
	4	29		I.	Tr.	In.
	6	7		I.	Sh.	Eg.
	6	46		I.	Tr.	Eg.
	11	22	47.1	II.	Ec.	Dis.
	15	20		II.	Oc.	Re.
24	1	12	10.8	I.	Ec.	Dis.
	3	16		III.	Sh.	In.
	4	7		I.	Oc.	Re.
	5	58		III.	Tr.	In.
	6	26		III.	Sh.	Eg.
	9	6		III.	Tr.	Eg.
	22	18		I.	Sh.	In.
	22	59		I.	Tr.	In.
25	0	35		I.	Sh.	Eg.
	1	16		I.	Tr.	Eg.
	6	26		II.	Sh.	In.
25	7	48		II.	Tr.	In.
	9	8		II.	Sh.	Eg.
	10	30		II.	Tr.	Eg.
	19	40	40.0	I.	Ec.	Dis.
	22	37		I.	Oc.	Re.
26	4	43		IV.	Sh.	In.
	7	48		IV.	Sh.	Eg.
	11	21		IV.	Tr.	In.
	14	20		IV.	Tr.	Eg.
	16	47		I.*	Sh.	In.
	17	28		I.*	Tr.	In.
	19	3		I.	Sh.	Eg.
	19	45		I.	Tr.	Eg.
27	0	39	52.7	II.	Ec.	Dis.
	4	43		II.	Oc.	Re.
	14	9	2.0	I.	Ec.	Dis.
	17	7		I.*	Oc.	Re.
	17	28	49.5	III.*	Ec.	Dis.
	23	25		III.	Oc.	Re.
28	11	15		I.	Sh.	In.
	11	58		I.	Tr.	In.
	13	32		I.	Sh.	Eg.
	14	15		I.	Tr.	Eg.
	19	44		II.	Sh.	In.
	21	12		II.	Tr.	In.
	22	26		II.	Sh.	Eg.
	23	53		II.	Tr.	Eg.
29	8	37	28.7	I.	Ec.	Dis.
	11	37		I.	Oc.	Re.
30	5	43		I.	Sh.	In.
	6	28		I.	Tr.	In.
	8	0		I.	Sh.	Eg.
	8	45		I.	Tr.	Eg.
	13	56	49.0	II	Ec.	Dis.
	18	6		II.*	Oc.	Re.
31	3	5	51.0	I.	Ec	Dis.
	6	6		I.	Oc.	Re.
	7	15		III.	Sh	In.
	10	22		III	Tr.	In.
	10	24		III.	Sh.	Eg.
	13	27		III.	Tr.	Eg.

NOTE.—In., denotes ingress, Eg., egress, Dis., disappearance, Re., reappearance, Ec., eclipse.
Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

WASHINGTON MEAN TIME.

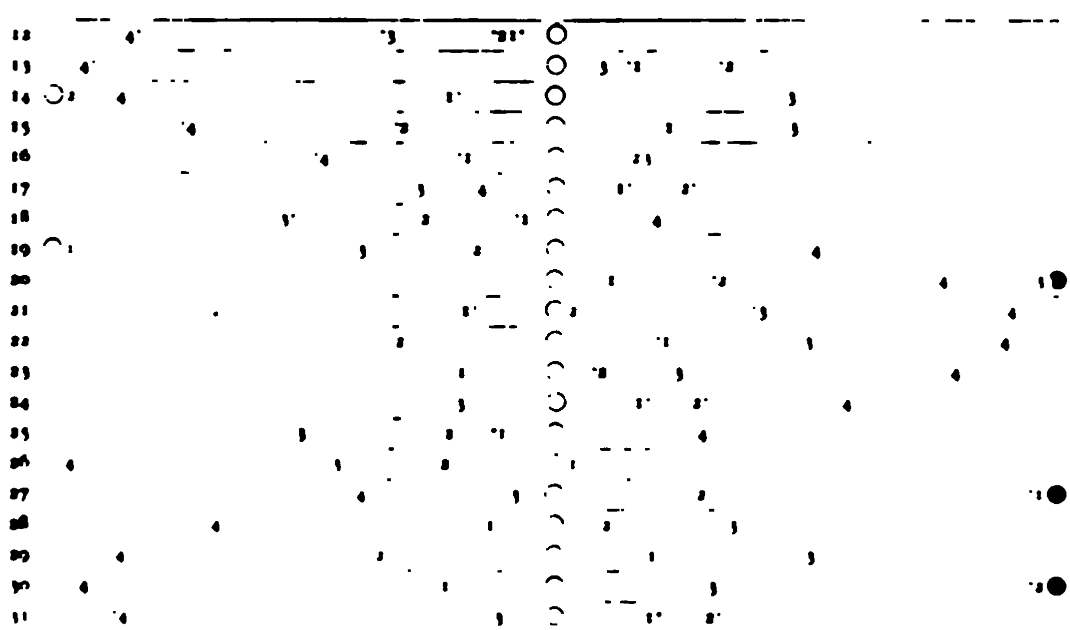
OCTOBER

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 17ʰ 0ᵐ for an Inverting Telescope.

Day	West	East



WASHINGTON MEAN TIME.

NOVEMBER.

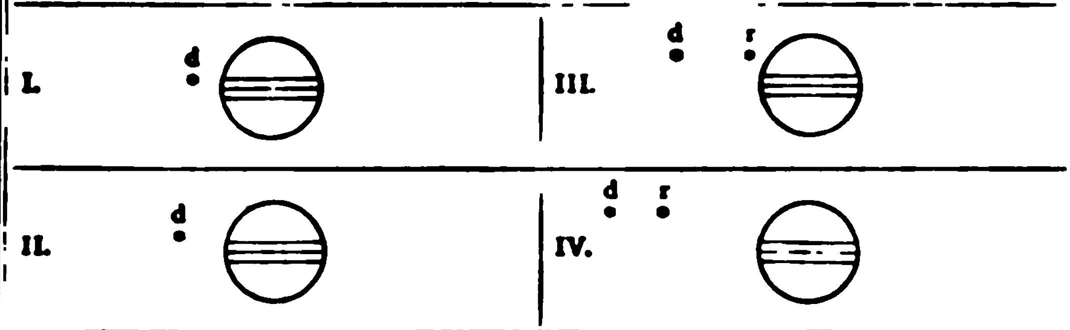
d	h	m	s			
1	0	12		I.	Sh.	In.
	0	58		I.	Tr.	In.
	2	29		I.	Sh.	Eg.
	3	15		I.	Tr.	Eg.
	9	2		II.	Sh	In.
	10	35		II.	Tr.	In.
	11	44		II.	Sh.	Eg.
	13	15		II.	Tr.	Eg.
	21	34	18.7	I.	Ec.	Dis.
2	0	36		I.	Oc.	Re.
	18	40		I.	Sh.	In.
	19	28		I.	Tr.	In.
	20	57		I.	Sh.	Eg.
	21	45		I.	Tr.	Eg.
3	3	13	58.6	II.	Ec.	Dis.
	7	28		II.	Oc.	Re.
	15	36	27.5	IV.*	Ec.	Dis.
	16	2	39.3	I.*	Ec.	Dis.
	18	16	6.3	IV.	Ec.	Re.
	19	6		I.	Oc.	Re.
	21	26	38.0	III.	Ec.	Dis.
	23	17		IV.	Oc.	Dis.
4	0	24	26.4	III.	Ec.	Re.
	0	41		III.	Oc.	Dis.
	2	1		IV.	Oc.	Re.
	3	45		III.	Oc.	Re.
	13	8		I.	Sh.	In.
	13	58		I.	Tr.	In.
	15	25		I.	Sh.	Eg.
	16	15		I.*	Tr.	Eg.
	22	19		II.	Sh.	In.
	23	59		II.	Tr.	In.
5	1	1		II.	Sh.	Eg.
	2	39		II.	Tr.	Eg.
	10	31	4.0	I.	Ec.	Dis.
	13	36		I.	Oc.	Re.
6	7	37		I.	Sh.	In.
	8	27		I.	Tr.	In.
	9	54		I.	Sh.	Eg.
	10	44		I.	Tr.	Eg.
	16	30	55.8	II.*	Ec.	Dis.
	20	50		II.	Oc.	Re.
7	4	59	25.2	I.	Ec.	Dis.
	8	5		I.	Oc.	Re.
	11	13		III.	Sh.	In.
	14	21		III.	Sh.	Eg.
	14	43		III.	Tr.	In.
	17	46		III.*	Tr.	Eg.
8	2	5		I.	Sh.	In.
	2	57		I.	Tr.	In.
	4	22		I.	Sh.	Eg.
	5	14		I.	Tr.	Eg.
	11	36		II.	Sh.	In.
	13	21		II.	Tr.	In.
	14	17		II.	Sh.	Eg.
	16	1		II.*	Tr.	Eg.
	23	27	51.3	I.	Ec.	Dis.
9	2	35		I.	Oc.	Re.
	20	33		I.	Sh.	In.
	21	27		I.	Tr.	In.
	22	50		I.	Sh.	Eg.
	23	44		I.	Tr.	Eg.
10	5	48	9.8	II.	Ec.	Dis.
	10	13		II.	Oc.	Re.
	17	56	10.6	I.*	Ec.	Dis.
	21	5		I.	Oc.	Re.
11	1	24	18.3	III.	Ec	Dis.
	4	21	6.0	III	Ec	Re
11	5	1		III.	Oc.	Dis.
	8	2		III.	Oc.	Re.
	15	2		I.	Sh.	In.
	15	56		I.*	Tr.	In.
	17	19		I.*	Sh.	Eg.
	18	13		I.*	Tr.	Eg.
	22	43		IV.	Sh.	In.
12	0	53		II.	Sh.	In.
	1	38		IV.	Sh.	Eg.
	2	44		II.	Tr.	In.
	3	34		II.	Sh.	Eg.
	5	23		II.	Tr.	Eg.
	7	36		IV.	Tr.	In.
	10	4		IV.	Tr.	Eg.
	12	24	33.8	I.	Ec.	Dis.
	15	34		I.*	Oc.	Re.
13	9	30		I.	Sh.	In.
	10	26		I.	Tr.	In.
	11	47		I.	Sh.	Eg.
	12	42		I.	Tr.	Eg.
	19	5	7.7	II.	Ec.	Dis.
	23	35		II.	Oc.	Re.
14	6	52	53.2	I.	Ec.	Dis.
	10	4		I.	Oc.	Re.
	15	11		III.*	Sh.	In.
	18	17		III.*	Sh.	Eg.
	19	3		III.	Tr.	In.
	22	3		III.	Tr.	Eg.
15	3	58		I.	Sh.	In.
	4	56		I.	Tr.	In.
	6	15		I.	Sh.	Eg.
	7	12		I.	Tr.	Eg.
	14	11		II.	Sh.	In.
	16	7		II.*	Tr.	In.
	16	51		II.*	Sh.	Eg.
	18	45		II.	Tr.	Eg.
16	1	21	17.7	I.	Ec.	Dis.
	4	33		I.	Oc.	Re.
	22	27		I.	Sh.	In.
	23	25		I.	Tr.	In.
17	0	44		I.	Sh.	Eg.
	1	42		I.	Tr.	Eg.
	8	22	26.4	II.	Ec.	Dis.
	12	57		II.	Oc.	Re.
	19	49	35.6	I.	Ec.	Dis.
	23	2		I.	Oc.	Re.
18	5	22	11.6	III.	Ec.	Dis.
	8	17	58.0	III.	Ec.	Re.
	9	20		III.	Oc.	Dis.
	12	18		III.	Oc.	Re.
	16	55		I.*	Sh.	In.
	17	55		I.*	Tr.	In.
	19	12		I.	Sh.	Eg.
	20	11		I.	Tr.	Eg.
19	3	28		II.	Sh.	In.
	5	29		II.	Tr.	In.
	6	9		II.	Sh.	Eg.
	8	7		II.	Tr.	Eg.
	14	17	57.3	I.	Ec.	Dis.
	17	32		I.*	Oc.	Re.
20	9	37	50.4	IV.	Ec.	Dis.
	11	23		I.	Sh	In
	12	6	26.8	IV.	Ec	Re.
	12	24		I.	Tr.	In
	13	40		I.	Sh	Eg.
	14	41		I.	Tr.	Eg.
	19	25		IV	Oc.	Dis.
20	21	32		IV.	Oc.	Re.
	21	39	25.6	II.	Ec.	Dis.
21	2	18		II.	Oc.	Re.
	8	46	15.4	I.	Ec.	Dis.
	12	1		I.	Oc.	Re.
	19	8		III.	Sh.	In.
	22	14		III.	Sh	Eg.
	23	20		III.	Tr.	In.
22	2	17		III.	Tr.	Eg.
	5	52		I.	Sh.	In.
	6	53		I.	Tr.	In.
	8	9		I.	Sh.	Eg.
	9	9		I.	Tr.	Eg.
	16	45		II.*	Sh.	In.
	18	51		II.	Tr.	In.
	19	26		II.	Sh.	Eg.
	21	29		II.	Tr.	Eg.
23	3	14	38.2	I.	Ec.	Dis.
	6	31		I.	Oc.	Re.
24	0	20		I.	Sh.	In.
	1	23		I.	Tr.	In.
	2	37		I.	Sh.	Eg.
	3	39		I.	Tr.	Eg.
	10	56	49.5	II.	Ec.	Dis.
	15	39		II.*	Oc.	Re.
	21	42	55.0	I.	Ec.	Dis.
25	1	0		I.	Oc.	Re.
	9	20	2.0	III.	Ec.	Dis.
	12	14	46.5	III.	Ec.	Re.
	13	36		III.	Oc.	Dis.
	16	31		III.*	Oc.	Re.
	18	48		I.	Sh.	In.
	19	52		I.	Tr.	In.
	21	5		I.	Sh.	Eg.
	22	8		I.	Tr.	Eg.
26	6	2		II.	Sh.	In.
	8	12		II.	Tr.	In.
	8	43		II.	Sh.	Eg.
	10	49		II.	Tr.	Eg.
	16	11	15.1	I.*	Ec.	Dis.
	19	29		I.	Oc.	Re.
27	13	17		I.	Sh.	In.
	14	22		I.*	Tr.	In.
	15	34		I.*	Sh.	Eg.
	16	38		I.*	Tr.	Eg.
28	0	13	49.6	II.	Ec.	Dis.
	5	0		II.	Oc.	Re.
	10	39	32.0	I.	Ec.	Dis.
	13	59		I.	Oc.	Re.
	16	43		IV.*	Sh.	In.
	19	29		IV.	Sh.	Eg.
	23	5		III.	Sh.	In.
29	2	10		III.	Sh.	Eg.
	3	31		IV.	Tr.	In.
	3	35		III.	Tr.	In.
	5	13		IV.	Tr.	Eg.
	6	28		III.	Tr.	Eg.
	7	45		I.	Sh.	In.
	8	51		I.	Tr.	In.
	10	2		I.	Sh.	Eg.
	11	7		I.	Tr.	Eg.
	19	19		II.	Sh.	In.
	21	34		II.	Tr.	In.
	21	59		II.	Sh.	Eg.
30	0	10		II.	Tr.	Eg.
	5	7	53.6	I.	Ec.	Dis.
	8	28		I.	Oc.	Re.

NOTE.—In., denotes ingress. Eg., egress; Dis., disappearance. Re., reappearance. Ec., eclipse.
Oc., denotes occultation. Tr., transit of the satellite. Sh., transit of the shadow; * Visible at Washington.

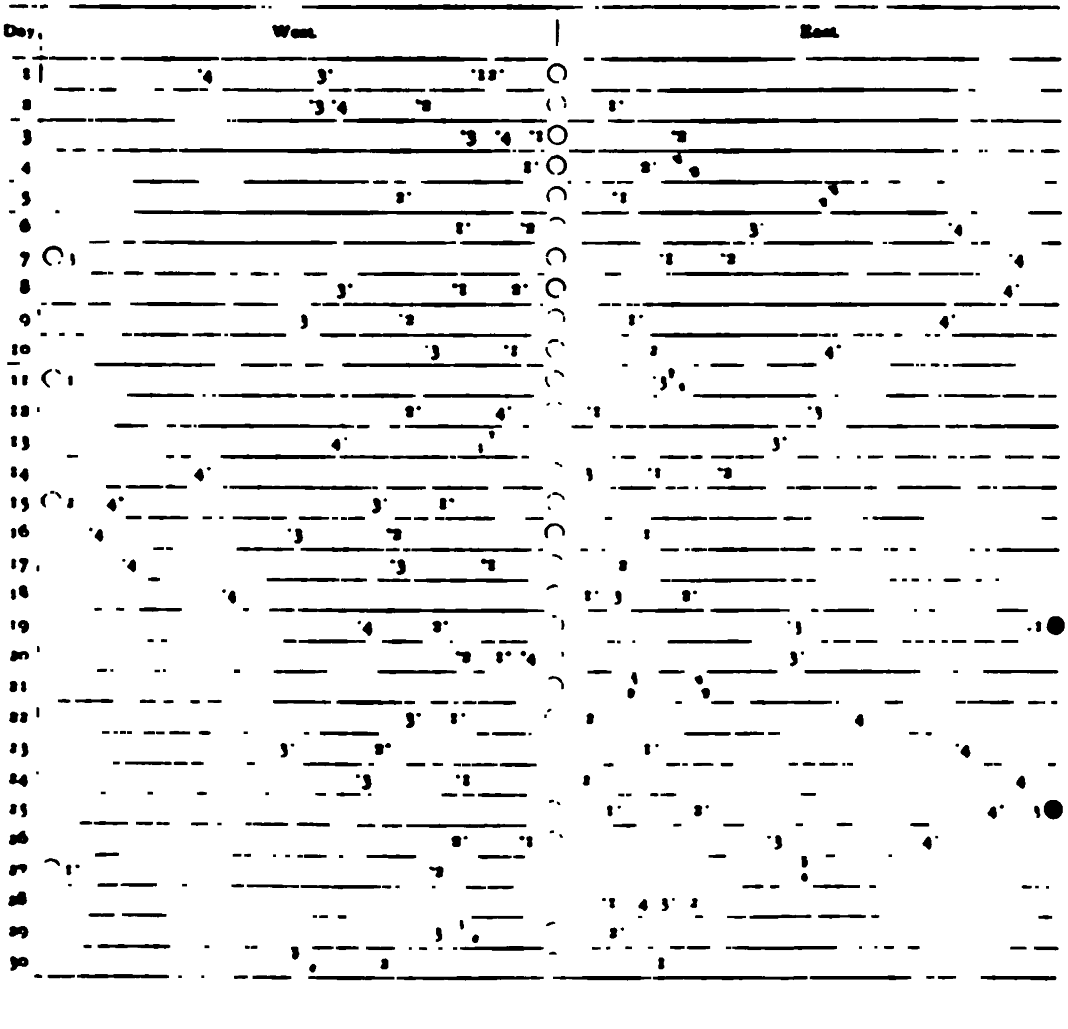
WASHINGTON MEAN TIME.

NOVEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 16h 30m for an Inverting Telescope.



31

WASHINGTON MEAN TIME.

DECEMBER.

d	h	m	s			
1	2	13		I.	Sh.	In.
	3	20		I.	Tr.	In.
	4	30		I.	Sh.	Eg.
	5	36		I.	Tr.	Eg.
	13	31	19.0	II.	Ec.	Dis.
	18	21		II.*	Oc.	Re.
	23	36	9.2	I.	Ec.	Dis.
2	2	57		I.	Oc.	Re.
	13	18	24.7	III.	Ec.	Dis.
	16	12	7.3	III.*	Ec.	Re.
	17	51		III.*	Oc.	Dis.
	20	42		I.	Sh.	In.
	20	43		III.	Oc.	Re.
	21	50		I.	Tr.	In.
	22	59		I.	Sh.	Eg.
3	0	5		I.	Tr.	Eg.
	8	36		II.	Sh.	In.
	10	54		II.	Tr.	In.
	11	16		II.	Sh.	Eg.
	13	30		II.	Tr.	Eg.
	18	4	28.3	I.*	Ec.	Dis.
	21	26		I.	Oc.	Re.
4	15	10		I.*	Sh.	In.
	16	19		I.*	Tr.	In.
	17	27		I.*	Sh.	Eg.
	18	35		I.*	Tr.	Eg.
5	2	48	20.4	II.	Ec.	Dis.
	7	41		II.	Oc.	Re.
	12	32	44.0	I.	Ec.	Dis.
	15	55		I.*	Oc.	Re.
6	3	3		III.	Sh.	In.
	6	7		III.	Sh.	Eg.
	7	47		III.	Tr.	In.
	9	38		I.	Sh.	In.
	10	37		III.	Tr.	Eg.
	10	48		I.	Tr.	In.
	11	55		I.	Sh.	Eg.
	13	4		I.	Tr.	Eg.
	21	53		II.	Sh.	In.
7	0	15		II	Tr.	In.
	0	33		II.	Sh.	Eg.
	2	50		II.	Tr.	Eg.
	3	38	56.6	IV.	Ec.	Dis.
	5	55	26.8	IV	Ec	Re.
	7	1	4.3	I.	Ec.	Dis.
	10	24		I.	Oc.	Re.
	15	7		IV.*	Oc.	Dis.
	16	21		IV.*	Oc.	Re.
8	4	7		I.	Sh	In.
	5	17		I.	Tr.	In.
	6	24		I.	Sh.	Eg.
	7	32		I.	Tr	Eg.
	16	5	55.6	II.*	Ec.	Dis.
	21	1		II.	Oc	Re.
9	1	29	19.0	I.	Ec.	Dis.
	4	53		I.	Oc.	Re.
	17	16	9.4	III.*	Ec.	Dis.
	20	8	49.2	III	Ec.	Re.
	22	1		III	Oc	Dis.
	22	35		I.	Sh	In
	23	45		I	Tr.	In
10	0	50		III	Oc.	Re
	0	52		I.	Sh	Eg
	2	1		I.	Tr	Eg.
	11	10		II	Sh	In.
	13	35		II	Tr	In.
	13	50		II *	Sh	Eg.
	16	9		II *	Tr	Eg

d	h	m	s			
10	19	57	36.6	I.	Ec.	Dis.
	23	22		I.	Oc.	Re.
11	17	3		I.*	Sh.	In.
	18	14		I.*	Tr.	In.
	19	20		I.	Sh.	Eg.
	20	30		I.	Tr.	Eg.
12	5	22	58.6	II.	Ec.	Dis.
	10	21		II.	Oc.	Re.
	14	25	51.3	I.*	Ec.	Dis.
	17	51		I.*	Oc.	Re.
13	7	1		III.	Sh.	In.
	10	4		III.	Sh.	Eg.
	11	32		I.	Sh.	In.
	11	56		III	Tr.	In.
	12	43		I.	Tr.	In.
	13	49		I.*	Sh.	Eg.
	14	43		III.*	Tr.	Eg.
	14	59		I.*	Tr.	Eg.
14	0	27		II	Sh.	In.
	2	54		II.	Tr.	In.
	3	7		II.	Sh.	Eg.
	5	28		II.	Tr.	Eg.
	8	54	10.5	I.	Ec.	Dis.
	12	19		I.	Oc.	Re.
15	6	0		I.	Sh.	In.
	7	12		I.	Tr.	In.
	8	17		I.	Sh.	Eg.
	9	27		I.	Tr.	Eg.
	10	42		IV.	Sh.	In.
	13	16		IV.	Sh.	Eg.
	18	40	39.5	II.*	Ec.	Dis.
	23	40		II.	Oc.	Re.
16	3	22	24.4	I.	Ec.	Dis.
	6	48		I.	Oc.	Re.
	21	13	56.0	III.	Ec.	Dis.
17	0	5	32.4	III.	Ec.	Re.
	0	28		I.	Sh.	In.
	1	41		I.	Tr.	In.
	2	9		III.	Oc.	Dis.
	2	45		I.	Sh.	Eg.
	3	56		I.	Tr.	Eg.
	4	54		III.	Oc.	Re.
	13	44		II.*	Sh	In.
	16	13		II.*	Tr	In.
	16	24		II.*	Sh.	Eg
	18	47		II.*	Tr	Eg
	21	50	41.0	I.	Ec	Dis.
18	1	17		I.	Oc.	Re.
	18	56		I.	Sh.	In.
	20	9		I.	Tr.	In.
	21	13		I.	Sh.	Eg.
	22	24		I.	Tr	Eg.
19	7	57	44.4	II.	Ec.	Dis
	12	59		II.	Oc.	Re.
	16	18	55.0	I.*	Ec	Dis.
	19	45		I.	Oc.	Re.
20	10	59		III	Sh.	In.
	13	25		I *	Sh	In.
	14	2		III.*	Sh	Eg
	14	38		I *	Tr.	In
	15	42		I *	Sh	Eg
	16	3		III *	Tr	In
	16	53		I *	Tr	Eg.
	18	47		III *	Tr	Eg
21	3	1		II.	Sh	In
	5	32		II.	Tr.	In
	5	40		II	Sh	Eg
	8	5		II	Tr	Eg

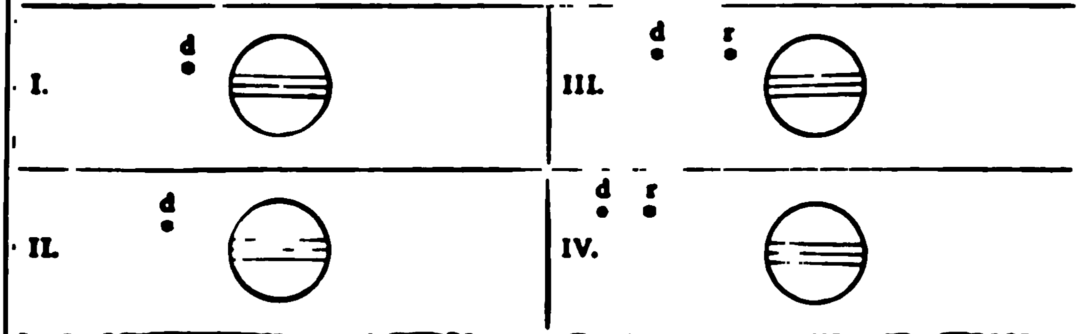
d	h	m	s			
21	10	47	13.3	I.	Ec.	Dis.
	14	14		I.*	Oc.	Re.
22	7	53		I.	Sh.	In.
	9	7		I.	Tr.	In.
	10	10		I.	Sh.	Eg.
	11	22		I.	Tr.	Eg.
	21	15	31.0	II.	Ec.	Dis.
23	2	17		II.	Oc.	Re.
	5	15	26.7	I.	Ec.	Dis.
	8	42		I.	Oc.	Re.
	21	40	30.0	IV.	Ec.	Dis.
	23	43	40.2	IV.	Ec.	Re.
24	1	11	15.0	III.	Ec.	Dis.
	2	21		I.	Sh.	In.
	3	35		I.	Tr.	In.
	4	1	47.0	III.	Ec.	Re.
	4	38		I.	Sh.	Eg.
	5	50		I.	Tr.	Eg.
	6	12		III.	Oc.	Dis.
	8	54		III.	Oc.	Re.
	16	17		II.*	Sh.	In.
	18	50		II.*	Tr.	In.
	18	56		II.	Sh.	Eg.
	21	23		II.	Tr.	Eg.
	23	43	42.4	I.	Ec.	Dis.
25	3	11		I.	Oc.	Re.
	20	50		I.	Sh.	In.
	22	4		I.	Tr.	In.
	23	7		I.	Sh.	Eg.
26	0	19		I.	Tr.	Eg.
	10	32	38.0	II.	Ec.	Dis.
	15	36		II.*	Oc.	Re.
	18	11	56.0	I.*	Ec.	Dis.
	21	39		I.	Oc.	Re.
27	14	57		III.*	Sh.	In.
	15	18		I.*	Sh.	In.
	16	32		I.*	Tr.	In.
	17	35		I.*	Sh.	Eg
	17	58		III.*	Sh.	Eg.
	18	47		I.*	Tr.	Eg.
	20	4		III.	Tr.	In.
	22	45		III.	Tr.	Eg.
28	5	34		II.	Sh.	In.
	8	7		II	Tr.	In
	8	13		II	Sh.	Eg
	10	39		II.	Tr.	Eg.
	12	40	13.5	I.	Ec.	Dis.
	16	7		I.*	Oc.	Re.
29	9	46		I.	Sh.	In.
	11	1		I.	Tr.	In.
	12	3		I.	Sh.	Eg.
	13	16		I.*	Tr.	Eg.
	23	50	30.5	II.	Ec.	Dis.
30	4	53		II	Oc.	Re.
	7	8	26.6	I.	Ec	Dis.
	10	35		I.	Oc.	Re.
31	4	15		I.	Sh.	In
	5	8	29.2	III	Ec.	Dis
	5	29		I.	Tr.	In
	6	32		I.	Sh.	Eg
	7	44		I.	Tr.	Eg
	7	57	57.0	III.	Ec	Re
	10	12		III	Oc.	Dis.
	12	50		III *	Oc.	Re
	18	51		II.*	Sh	In.
	21	24		II	Tr.	In.
	21	30		II.	Sh	Eg.
	23	56		II	Tr	Eg

NOTE.—In., denotes ingress. Eg., egress. Dis., disappearance. Re., reappearance. Ec., eclipse. Oc., denotes occultation; Tr., transit of the satellite; Sh., transit of the shadow; * Visible at Washington.

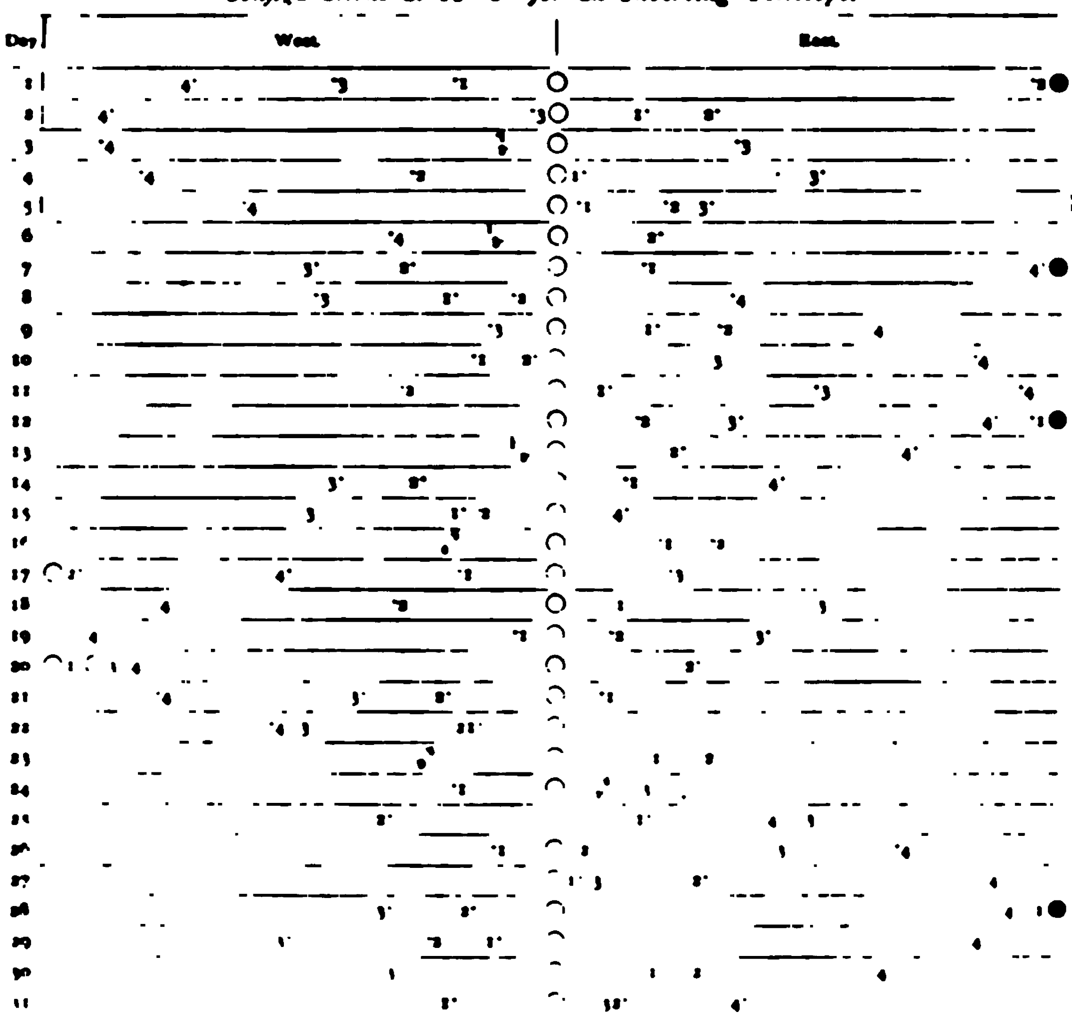
WASHINGTON MEAN TIME.

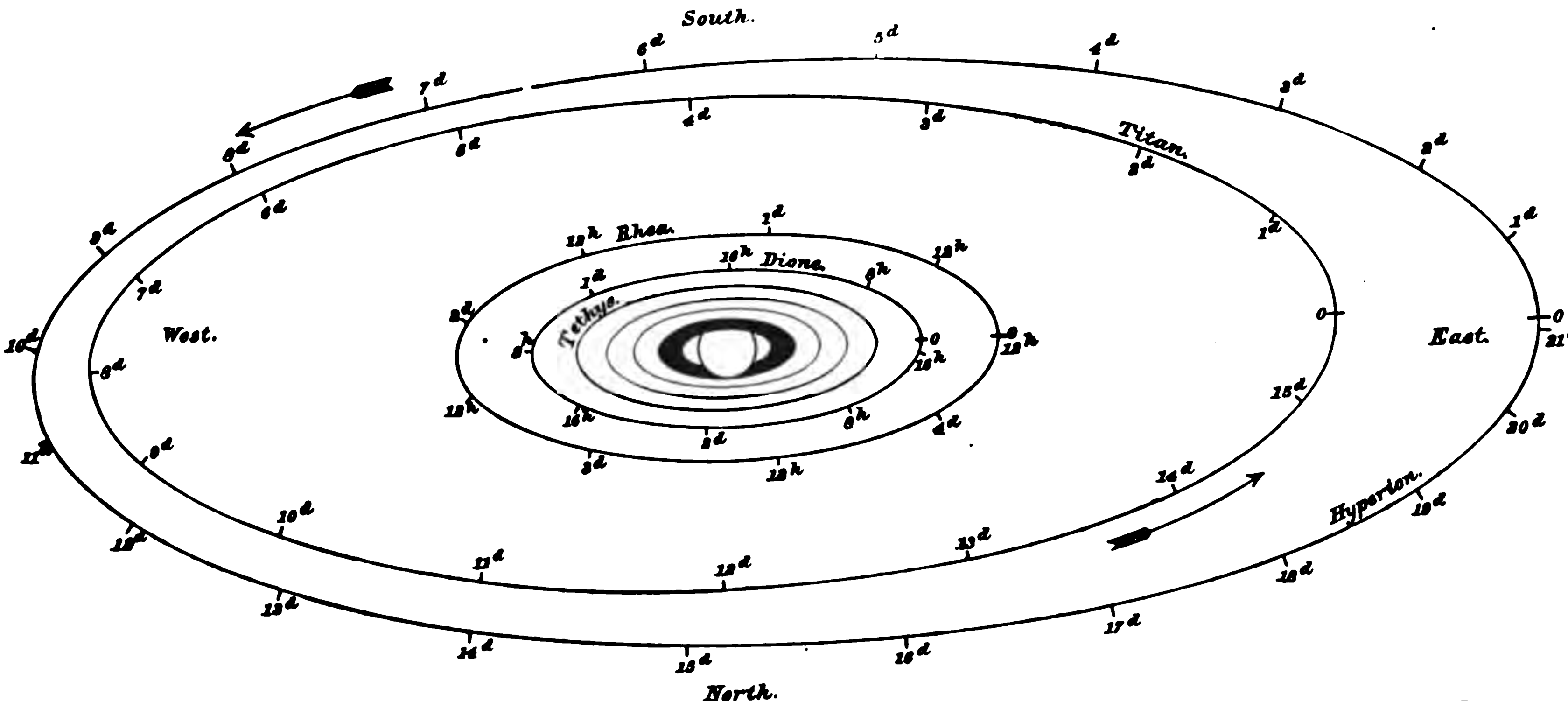
DECEMBER

Phases of the Eclipses of the Satellites for an Inverting Telescope.



Configurations at 16h 0m for an Inverting Telescope.





APPARENT ORBITS OF THE SEVEN INNER SATELLITES OF SATURN,

AT OPPOSITION IN 1897,

AS SEEN IN AN INVERTING TELESCOPE.

Names of the Satellites		Mean Synodic Periods.		
			d	h
I	Mimas.	I.	0	22.6
II	Enceladus.	II.	1	8.9
III	Tethys	III	1	21.3
IV	Dione.	IV.	2	17.7
V	Rhea.	V.	4	12.5
VI	Titan.	VI.	15	23.3
VII.	Hyperion.	VII.	21	7.6
VIII	Iapetus	VIII	79	22.1

WASHINGTON MEAN TIME OF GREATEST ELONGATION, ETC.

In the diagram on the preceding page, the points of the orbits marked "o" are those of the eastern elongation, as seen in an inverting telescope. The apparent positions of a satellite at any time may be marked on the diagram by counting around the orbit the interval in days and hours which has elapsed since the last east elongation. The times of these elongations may be found from the following tables. Mimas can be seen only within a few hours of each elongation: the time of every elongation visible at Washington is therefore given. The times of other elongations of any satellite in the same direction may be found by adding or subtracting any multiple of the period. For the three outer satellites the times of elongation and conjunction are given. The following abbreviations are used:—

- E., East Elongation.
- I., Inferior Conjunction (south of planet).
- W., West Elongation.
- S., Superior Conjunction (north of planet).

MIMAS.

Greatest Elongations Visible at Washington.

	d	h		d	h		d	h		d	h		d	h		d	h
Jan	4	17.9 W	Feb	26	12.6 W.	Apr.	6	15.1 E.	May	4	10.2 W	May	30	8.1 E.	July	2	9.0 E
	5	16.5 W	Mar	3	17.0 E		7	13.8 E.		5	8.9 W	June	2	15.3 W		6	13.4 W
	12	18.2 E.		4	15.6 E		8	12.4 E.		8	16.0 E.		3	13.9 W		7	12.1 W
	13	16.8 E.		5	14.2 E		9	11.0 E.		9	14.6 E.		4	12.5 W		8	10.7 W
	20	18.4 W		6	12.8 E		13	16.7 W.		10	13.2 E.		5	11.1 W		9	9.3 W
	21	17.1 W		11	17.2 W		14	15.4 W.		11	11.8 E.		6	9.7 W		15	12.3 E.
	22	15.7 W.		12	15.8 W		15	14.0 W.		12	10.5 E.		7	8.3 W		16	10.9 E.
	29	17.3 E		13	14.5 W.		16	12.6 W.		13	9.1 E.		11	14.1 E		17	9.6 E.
	30	16.0 E.		14	13.1 W.		17	11.2 W.		14	7.7 E.		12	12.7 E.		18	8.2 E
	31	14.6 E		15	11.7 W.		18	9.8 W.		17	14.8 W		13	11.3 E.		24	11.2 W
Feb	6	17.6 W		20	16.1 E.		22	15.6 E.		18	13.4 W		14	9.9 E.		25	9.8 W
	7	16.2 W		21	14.7 E.		23	14.2 E.		19	12.1 W		15	8.6 E.		26	8.4 W
	8	14.8 W		22	13.3 E.		24	12.8 E.		20	10.7 W.		19	14.3 W	Aug	1	11.5 E.
	14	17.9 E.		23	11.9 E.		25	11.4 E.		21	9.3 W		20	12.9 W.		2	10.1 E.
	15	16.5 E.		28	16.3 W.		26	10.0 E.		22	7.9 W		21	11.6 W		3	8.7 E.
	16	15.1 E.		29	14.9 W		27	8.6 E.		25	15.0 E.		22	10.2 W.		10	10.4 W
	17	13.7 E.		30	13.5 W		30	15.8 W.		26	13.7 E.		23	8.8 W.		11	9.0 W
	23	16.7 W		31	12.2 W	May	1	14.4 W		27	12.3 E.		28	13.2 E.		18	10.6 E.
	24	15.3 W	Apr	1	10.8 W		2	13.0 W		28	10.9 E.		29	11.8 E.		19	9.3 E.
	25	14.0 W		5	16.3 E.		3	11.6 W		29	9.5 E.		30	10.4 E.		20	7.9 E.

ENCELADUS

	d	h		d	h		d	h		d	h		d	h		d	h
Jan	21	2.9 E	Feb	3	19.8 E	Feb	17	12.7 E.	Mar	3	5.6 E.	Mar	16	22.4 E.	Mar	30	15.2 E
	22	11.8 E		5	4.7 E		18	21.6 E		4	14.5 E.		18	7.3 E.	Apr	1	0.1 E
	23	20.7 E.		6	13.6 E		20	6.5 E.		5	23.3 E.		19	16.2 E.		2	9.0 E
	25	5.6 E		7	22.5 E.		21	15.4 E.		7	8.2 E.		21	1.0 E.		3	17.8 E
	26	14.5 E.		9	7.4 E		23	0.3 E.		8	17.1 E.		22	9.9 E		5	2.7 E.
	27	23.4 E		10	16.3 E		24	9.2 E.		10	2.0 E		23	18.8 E		6	11.6 E
	29	8.3 E		12	1.2 E.		25	18.0 E.		11	10.9 E.		25	3.7 E.		7	20.5 E.
	30	17.2 E		13	10.1 E.		27	2.9 E.		12	19.8 E.		26	12.6 E.		9	5.3 E
Feb	1	2.1 E.		14	19.0 E.		28	11.8 E.		14	4.6 E.		27	21.4 E.		10	14.2 E
	2	11.0 E.		16	3.8 E.	Mar	1	20.7 E.		15	13.5 E.		29	6.3 E.		11	23.1 E.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

ENCELADUS—(*Concluded.*)

d h	d h	d h	d h	d h	d h
Apr. 13 8.0 E.	May 3 21.1 E.	May 24 10.2 E.	June 13 23.4 E.	July 4 12.6 E.	July 25 1.9 E.
14 16.9 E.	5 6.0 E.	25 19.1 E.	15 8.3 E.	5 21.5 E.	26 10.8 E.
16 1.7 E.	6 14.9 E.	27 4.0 E.	16 17.1 E.	7 6.4 E.	27 19.6 E.
17 10.6 E.	7 23.7 E.	28 12.9 E.	18 2.0 E.	8 15.2 E.	29 4.5 E.
18 19.5 E.	9 8.6 E.	29 21.7 E.	19 10.9 E.	10 0.1 E.	30 13.4 E.
20 4.4 E.	10 17.5 E.	31 6.6 E.	20 19.8 E.	11 9.0 E.	31 22.3 E.
21 13.2 E.	12 2.4 E.	June 1 15.5 E.	22 4.7 E.	12 17.9 E.	Aug. 2 7.2 E.
22 22.1 E.	13 11.2 E.	3 0.4 E.	23 13.5 E.	14 2.8 E.	3 16.1 E.
24 7.0 E.	14 20.1 E.	4 9.2 E.	24 22.4 E.	15 11.7 E.	5 1.0 E.
25 15.9 E.	16 5.0 E.	5 18.1 E.	26 7.3 E.	16 20.6 E.	6 9.9 E.
27 0.7 E.	17 13.9 E.	7 3.0 E.	27 16.2 E.	18 5.4 E.	7 18.8 E.
28 9.6 E.	18 22.7 E.	8 11.9 E.	29 1.1 E.	19 14.3 E.	9 3.6 E.
29 18.5 E.	20 7.6 E.	9 20.8 E.	30 9.9 E.	20 23.2 E.	10 12.5 E.
May 1 3.4 E.	21 16.5 E.	11 5.6 E.	July 1 18.8 E.	22 8.1 E.	11 21.4 E.
2 12.2 E.	23 1.4 E.	12 14.5 E.	3 3.7 E.	23 17.0 E.	13 6.3 E.

TETHYS.

d h	d h	d h	d h	d h	d h
Jan. 11 1.6 E.	Feb. 15 22.6 E.	Mar. 23 19.4 E.	Apr. 28 16.0 E.	June 3 12.5 E.	July 9 9.1 E.
12 22.9 E.	17 19.9 E.	25 16.7 E.	30 13.3 E.	5 9.7 E.	11 6.4 E.
14 20.2 E.	19 17.2 E.	27 14.0 E.	May 2 10.6 E.	7 7.0 E.	13 3.7 E.
16 17.5 E.	21 14.5 E.	29 11.3 E.	4 7.8 E.	9 4.3 E.	15 1.0 E.
18 14.9 E.	23 11.9 E.	31 8.6 E.	6 5.1 E.	11 1.6 E.	16 22.3 E.
20 12.2 E.	25 9.2 E.	Apr. 2 5.9 E.	8 2.4 E.	12 22.9 E.	18 19.6 E.
22 9.5 E.	27 6.5 E.	4 3.2 E.	9 23.7 E.	14 20.2 E.	20 16.9 E.
24 6.8 E.	Mar. 1 3.8 E.	6 0.5 E.	11 21.0 E.	16 17.5 E.	22 14.2 E.
26 4.2 E.	3 1.1 E.	7 21.8 E.	13 18.3 E.	18 14.8 E.	24 11.5 E.
28 1.5 E.	4 22.4 E.	9 19.1 E.	15 15.6 E.	20 12.1 E.	26 8.8 E.
29 22.8 E.	6 19.7 E.	11 16.4 E.	17 12.9 E.	22 9.4 E.	28 6.2 E.
31 20.1 E.	8 17.0 E.	13 13.7 E.	19 10.1 E.	24 6.7 E.	30 3.5 E.
Feb. 2 17.4 E.	10 14.3 E.	15 10.9 E.	21 7.4 E.	26 4.0 E.	Aug. 1 0.8 E.
4 14.7 E.	12 11.6 E.	17 8.2 E.	23 4.7 E.	28 1.3 E.	2 22.1 E.
6 12.0 E.	14 8.9 E.	19 5.5 E.	25 2.0 E.	29 22.6 E.	4 19.4 E.
8 9.4 E.	16 6.2 E.	21 2.8 E.	26 23.3 E.	July 1 19.9 E.	6 16.7 E.
10 6.7 E.	18 3.5 E.	23 0.1 E.	28 20.6 E.	3 17.2 E.	8 14.0 E.
12 4.0 E.	20 0.8 E.	24 21.4 E.	30 17.9 E.	5 14.5 E.	10 11.3 E.
14 1.3 E.	21 22.1 E.	26 18.7 E.	June 1 15.2 E.	7 11.8 E.	12 8.7 E.

DIONE.

d h	d h	d h	d h	d h	d h
Jan. 20 6.3 E.	Feb. 22 2.8 E.	Mar. 26 22.9 E.	Apr. 28 18.8 E.	May 31 14.6 E.	July 3 10.5 E.
23 0.0 E.	24 20.5 E.	29 16.6 E.	May 1 12.4 E.	June 3 8.2 E.	6 4.1 E.
25 17.7 E.	27 14.1 E.	Apr. 1 10.3 E.	4 6.1 E.	6 1.9 E.	8 21.8 E.
28 11.4 E.	Mar. 2 7.8 E.	4 3.9 E.	6 23.7 E.	8 19.5 E.	11 15.5 E.
31 5.2 E.	5 1.5 E.	6 21.6 E.	9 17.4 E.	11 13.2 E.	14 9.2 E.
Feb. 2 22.9 E.	7 19.2 E.	9 15.2 E.	12 11.0 E.	14 6.8 E.	17 2.8 E.
5 16.6 E.	10 12.9 E.	12 8.9 E.	15 4.7 E.	17 0.5 E.	19 20.5 E.
8 10.3 E.	13 6.6 E.	15 2.5 E.	17 22.3 E.	19 18.2 E.	22 14.2 E.
11 4.0 E.	16 0.2 E.	17 20.2 E.	20 16.0 E.	22 11.8 E.	25 7.9 E.
13 21.7 E.	18 17.9 E.	20 13.8 E.	23 9.6 E.	25 5.5 E.	28 1.6 E.
16 15.4 E.	21 11.6 E.	23 7.5 E.	26 3.3 E.	27 23.1 E.	30 19.3 E.
19 9.1 E.	24 5.2 E.	26 1.2 E.	28 20.9 E.	30 16.8 E.	Aug. 2 13.0 E.

RHEA						TITAN						HYPERION					
	d	h		d	h		d	h		d	h		d	h		d	h
Jan	22	12.2 E	May	1	21.2 E	Jan.	26	22.7 E	Apr	26	16.9 W	Jan	19	0.6 E	May	16	2.7 W
	27	0.7 E		6	9.5 E	Feb.	1	20.0 I		30	16.2 S		24	19.7 I		20	20.1 S
	31	13.2 E		10	21.8 E		6	0.7 W	May	4	13.5 E		29	16.1 W		26	19.6 E
Feb	5	1.7 E		15	10.1 E		10	0.3 S		8	10.3 I	Feb	3	10.3 S	June	1	11.6 I
	9	14.2 E		19	22.4 E		13	22.3 E		12	14.2 W		9	11.7 E		6	6.4 W
	14	2.7 E		24	10.7 E		17	19.5 I		16	13.7 S		15	5.9 I		10	23.9 S
	18	15.2 E		28	23.0 E		22	0.1 W		20	10.9 E		20	2.0 W		16	23.2 E
	23	3.6 E	June	2	11.3 E		25	23.5 S		24	7.6 I		24	20.0 S		22	15.3 I
	27	16.0 E		6	23.7 E	Mar	1	21.4 E		28	11.6 W	Mar	2	21.2 E		27	10.0 W
Mar	4	4.5 E		11	12.0 E		5	18.5 I	June	1	11.1 S		8	14.5 I	July	2	3.7 S
	8	16.9 E		16	0.3 E		9	22.9 W.		5	8.2 E		13	10.4 W.		8	3.0 E
	13	5.3 E		20	12.7 E		13	22.3 S		9	5.1 I		18	4.2 S		13	19.2 I
	17	17.7 E		25	1.0 E		17	20.0 E		13	9.1 W		24	4.9 E		18	14.0 W
	22	6.1 E		29	13.4 E		21	17.0 I		17	8.8 S		29	21.6 I		23	8.0 S
	26	18.4 E	July	4	1.7 E		25	21.3 W		21	5.9 E	Apr	3	17.1 W		29	7.5 E
	31	6.8 E		8	14.1 E		29	20.6 S		25	2.7 I		8	10.8 S	Aug	3	23.6 I
Apr	4	19.2 E		13	2.5 E	Apr	2	18.2 E		29	6.8 W		14	11.0 E		8	18.6 W
	9	7.5 E		17	14.7 E		6	15.1 I	July	3	6.7 S		20	5.2 I		13	12.9 S
	13	19.9 E		22	3.1 E		10	19.3 W		7	3.8 E		24	22.4 W		19	12.7 E
	18	8.2 E		26	15.8 E		14	18.5 S		11	0.8 I		29	15.9 S		25	4.7 I
	22	20.5 E		31	4.2 E		18	16.0 E		15	4.9 W	May	5	15.5 E		30	0.0 W
	27	[illegible] E	Aug	4	16.6 E		22	12.8 I		19	5.0 S		11	7.8 I	Sept	3	18.[illegible] S

IAPETUS

	d	h		d	h		d	h		d	h		d	h		d	h
Jan	1	19.7 W	Feb	11	9.6 E	Mar.	22	21.7 W	May	1	9.1 E	June	9	2.8 W	July	18	17.1 E
	21	20.5 S	Mar	2	16.3 I	Apr	11	9.6 S		19	5.9 I		28	12.3 S	Aug	5	20.[illegible] I

THE APPARENT ELEMENTS OF SATURN'S RINGS.

Greenwich Mean Noon.		a Outer Major Axis.	b Outer Minor Axis.	p Inclination of Northern Semi-Minor Axis to Circle of Declination from North to East.	l The Elevation of the Earth above the Plane of the Ring.	l' The Elevation of the Sun above the Plane of the Ring.	U Earth's Longitude from Saturn counted in Plane of Ring from the Ring's Ascending Node on the Equator.	U' Earth's Longitude from Saturn counted in Plane of Ring from the Ring's Ascending Node on the Ecliptic.
		″	″	° ′	° ′	° ′	° ′	° ′
Jan	0	35.28	14.45	+2 24.3	+24 10.7	+23 15.3	289 13.4	246 51.9
	20	36.17	14.97	+2 35.1	+24 27.1	+23 24.1	291 6.2	248 44.9
Feb	9	37.[illegible]	15.53	+2 47.8	+24 36.4	+23 32.6	292 26.7	250 5.4
Mar	1	38.[illegible]	16.[illegible]	+2 52.7	+24 39.7	+23 41.0	293 7.2	250 46.3
	21	39.55	16.58	+2 52.2	+24 34.8	+23 49.2	293 4.0	250 42.8
Apr	10	40.95	16.91	+2 46.7	+24 25.4	+23 57.2	292 18.9	249 57.8
	30	41.[illegible]	17.[illegible]	+2 37.3	+24 12.0	+24 5.2	291 1.5	248 41.5
May	20	41.[illegible]	17.00	+2 25.7	+23 56.7	+24 12.7	289 27.0	247 6.2
June	9	41.33	16.71	+2 14.4	+23 42.5	+24 20.3	287 54.7	245 34.1
	29	40.74	16.28	+2 5.5	+23 32.8	+24 27.6	286 42.7	244 22.2
July	19	39.[illegible]	15.79	+2 0.7	+23 30.0	+24 34.8	286 4.0	243 43.6
Aug	8	38.11	15.34	+2 [illegible]	+23 35.4	+24 41.8	286 5.3	243 44.9
	28	37.[illegible]	14.97	+2 6.2	+23 47.5	+24 48.6	286 47.4	244 27.1
Sept	17	35.[illegible]	14.71	+2 16.2	+24 [illegible]	+24 55.2	287 57.1	245 40.9
Oct	7	35.[illegible]	14.56	+2 29.9	+24 [illegible]	+25 1.6	289 58.5	247 [illegible]
	27	34.[illegible]	14.53	+2 40.5	+24 54.9	+25 7.8	292 15.6	249 [illegible]
Nov	16	34.[illegible]	14.61	+3 4.7	+25 17.8	+25 14.9	294 43.7	252 [illegible]
Dec	6	34.81	14.79	+3 23.2	+25 37.4	+25 19.5	297 19.4	254 [illegible]
	26	34.55	15.[illegible]	+3 40.8	+25 52.7	+25 25.5	299 50.2	257 [illegible]
	31	34.[illegible]	15.17	+3 44.9	+25 55.7	+25 26.9	300 25.9	258 [illegible]

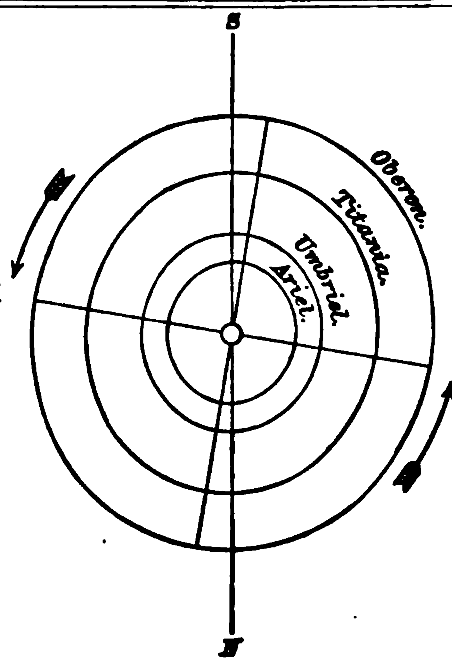
The factor to be multiplied by a and b to obtain the axes of—

The inner ellipse of the outer ring 0.8[illegible] log factor = 9.9445
The outer ellipse of the inner ring 0.8[illegible] log factor = 9.9344
The inner ellipse of the inner ring [illegible] log factor 9.8[illegible]
The inner ellipse of the dusky ring 0.5[illegible] log factor = 9.7[illegible]

Note.—The positive sign [illegible] indicates that the [illegible] surface of the ring [illegible] is the [illegible] one.

Apparent Apsides.

Date.	Position Angle.	App. Distances. Ariel.	App. Distances. Umbriel.
	°	"	"
Feb. 18,	348.0	14.1	19.6
May 17,	350.8	14.8	20.7
Aug. 13,	353.7	14.1	19.7



Apparent Apsides.

Date.	Position Angle.	App. Distances. Titania.	App. Distances. Oberon.
	°	"	"
Feb. 18,	348.0	32.2	43.1
May 17,	350 8	33.9	45.4
Aug. 13,	353.7	32.3	43.1

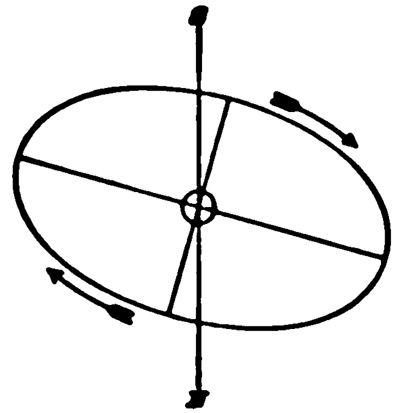
APPARENT ORBITS OF THE SATELLITES OF URANUS IN 1897, AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

ARIEL.						UMBRIEL.						TITANIA.						OBERON.			
North.			South.			North.			South.			North.			South.			North and South.			
	d	h		d	h		d	h		d	h		d	h		d	h		d	h	
Feb.	14	4.2	Feb.	17	22.9	Feb.	7	10.7	Feb.	9	12.4	Jan.	31	15.0	Feb.	4	23.4	Feb.	22	16.8	S.
	21	17.7		25	12.4		15	17.5		17	19.2	Feb.	9	7.7		13	16.1	Mar.	1	10.4	N.
Mar.	1	7.1	Mar.	5	1.8		24	0.4		26	2.1		18	0.5		22	8.9		8	4.0	S.
	8	20.6		12	15.3	Mar.	4	7.3	Mar.	6	9.0		26	17.4	Mar.	3	1.8		14	21.6	N.
	16	10.0		20	4.8		12	14.2		14	16.0	Mar.	7	10.3		11	18.8		21	15.2	S
	23	23.5		27	18.3		20	21.2		22	22.9		16	3.3		20	11.8		28	8.9	N
	31	13.0	Apr.	4	7.7		29	4.1		31	5.9		24	20.3		29	4.8	Apr.	4	2.6	S.
Apr.	8	2.5		11	21.2	Apr.	6	11.1	Apr.	8	12.8	Apr.	2	13.4	Apr.	6	21.9		10	20.4	N.
	15	16.0		19	10.8		14	18.1		16	19.8		11	6.5		15	15.0		17	14.2	S.
	23	5.5		27	0.3		23	1.1		25	2.9		19	23 6		24	8.2		24	8.0	N.
	30	19.0	May	4	13.8	May	1	8.1	May	3	9.9		28	16 8	May	3	1 4	May	1	1.9	S.
May	8	8.6		12	3.3		9	15.1		11	16.9	May	7	10 0		11	18.5		7	19.7	N.
	15	22.1		19	16.8		17	22.2		19	23.9		16	3 1		20	11.7		14	13.4	S.
	23	11.6		27	6.4		26	5.2		28	7.0		24	20.3		29	4.9		21	7.3	N.
	31	1.1	June	3	19.9	June	3	12.2	June	5	14.0	June	2	13.5	June	6	22.1		28	1.2	S.
June	7	14.7		11	9.5		11	19 3		13	21.0		11	6 7		15	15.3	June	3	19.1	N.
	15	4.2		18	23.0		20	2.3		22	4.1		19	23 9		24	8.4		10	13.0	S.
	22	17.7		26	12.5		28	9 3		30	11 0		28	16.9	July	3	1.5		17	6.8	N.
	30	7.2	July	4	2.0	July	6	16.3	July	8	18.0	July	7	10 0		11	18.5		24	0.5	S.
July	7	20.8		11	15.5		14	23.3		17	1.0		16	3.1		20	11.6		30	18.2	N.
	15	10 3		19	5.0		23	6 2		25	8 0		24	20 1		29	4 6	July	7	11.9	S.
	22	23.8		26	18 5		31	13 2	Aug.	2	14 9	Aug	2	13 1	Aug	6	21 5		14	5.6	N.
	30	13.2	Aug.	3	8.0	Aug.	8	20.1		10	21.8		11	6 0		15	14 4		20	23.3	S.
Aug.	7	2.7		10	21.5		17	3.0		19	4.8		19	22 9		24	7.4		27	16.9	N.
	14	16.2		18	10.9		25	9.9		27	11.7		28	15 8	Sept.	2	0.3	Aug.	3	10.5	S.

	d	h		d	h
Period of Ariel,	2	12.489	Period of Titania,	8	16 942
Period of Umbriel,	4	3 460	Period of Oberon,	13	11.119

NOTE.—For Ariel only every third elongation is given, and for Umbriel every alternate one. The intermediate ones may be found by adding multiples of the period of the satellite.



Date.	Position Angle of Apses	Apparent Distance of Apses
	°	"
Mar 6.	292.8	+ 16.4
Aug 29.	298.0	+ 16.3
Dec. 3.	157.0	+ 16.9

APPARENT ORBIT OF THE SATELLITE OF NEPTUNE IN 1897, AS SEEN IN AN INVERTING TELESCOPE.

WASHINGTON MEAN TIME OF GREATEST ELONGATION.

East.	d h	West.	d h	East.	d h	West.	d h	East.	d h	West.	d h
Jan.	1 19.5	Jan.	4 18.0	Mar	13 8.5	Mar.	16 7.0	Oct	28 11.0	Oct	31 9.5
	7 16.6		10 15.2		19 5.6		22 4.1	Nov	3 8.1	Nov.	6 6.6
	13 13.7		16 12.3		25 2.6		28 1.1		9 5.1		12 3.7
	19 10.8		22 9.4	Sept.	5 13.6	Sept	8 12.1		15 2.3		18 0.8
	25 7.9		28 6.5		11 10.6		14 9.1		20 23.4		23 21.9
	31 5.0	Feb.	3 3.6		17 7.6		20 6.1		26 20.5		29 19.0
Feb.	6 2.1		9 0.7		23 4.6		26 3.2	Dec.	2 17.6	Dec.	5 16.1
	11 23.2		14 21.8		29 1.7	Oct.	2 0.2		8 14.7		11 13.3
	17 20.3		20 18.8	Oct.	4 22.7		7 21.2		14 11.8		17 10.4
	23 17.4		26 15.9		10 19.8		13 18.3		20 9.0		23 7.5
Mar	1 14.4	Mar.	4 13.0		16 16.8		19 15.4		26 6.1		29 4.7
	7 11.5		10 10.0		22 13.9		25 12.4	Jan.	1 3.2	Jan.	4 1.8

The above times are those of each passage of the satellite through the apses of its apparent orbit. The position of the satellite at any other time may be found by measuring around the orbit from the apsis last passed through, remembering that the radius vector of the satellite describes equal areas in equal times.

Period of the satellite of Neptune, $5^{d}\ 21^{h}.043$.

Note. In the preceding diagrams the central circle represents the planet and is on the same scale as the orbits.

WASHINGTON MEAN TIME.

PLANETARY CONSTELLATIONS.

	d	h	m		°	′
Jan.	4	0	34	☌ ☿ ☾ .... ☿ −	0	8
	5	23	–	☿ Greatest elong. E.	19	9
	6	2	14	☌ ♀ ☾ .... ♀ −	3	7
	9	13	–	☿ in ☊		
	12	12	–	☿ Stationary.		
	14	4	–	☿ in Perihelion.		
	14	10	21	☌ ♂ ☾ .... ♂ −	1	42
	14	23	18	☌ ♆ ☾ .... ♆ −	5	50
	15	14	–	♂ Stationary.		
	21	4	6	☌ ♃ ☾ .... ♃ +	3	46
	21	22	–	☌ ☿ ☉ Inferior.		
	24	11	–	☿ Greatest Hel. Lat. N.		
	26	18	49	☌ ♅ ☾ .... ♅ +	5	29
	26	20	53	☌ ♄ ☾ .... ♄ +	7	19
	29	18	–	♀ in ☊		
	30	15	45	☌ ☿ ☾ .... ☿ +	5	11
Feb.	1	–	–	☉ eclipsed, vis. at Wash.		
	2	11	–	☿ Stationary.		
	5	5	43	☌ ♀ ☾ .... ♀ −	3	48
	11	2	43	☌ ♂ ☾ .... ♂ −	1	51
	11	7	28	☌ ♆ ☾ .... ♆ −	5	53
	15	11	–	☿ Greatest elong. W.	26	23
	15	14	–	♀ Greatest elong. E.	46	39
	16	14	–	□ ♅ ☉		
	16	22	–	☿ in ☋		
	17	7	3	☌ ♃ ☾ .... ♃ +	3	33
	18	3	–	□ ♄ ☉		
	19	4	–	☌ ♂ ♆ .... ♂ +	4	2
	22	21	–	☍ ♃ ☉		
	23	1	1	☌ ♅ ☾ .... ♅ +	5	27
	23	4	15	☌ ♄ ☾ .... ♄ +	7	19
	25	16	–	♆ Stationary.		
	27	3	–	☿ in Aphelion.		
	28	20	7	☌ ☿ ☾ .... ☿ −	1	57
Mar.	2	22	–	♅ Stationary.		
	4	8	–	♀ in Perihelion.		
	6	20	30	☌ ♀ ☾ .... ♀ −	1	25
	7	2	–	□ ♆ ☉		
	9	10	–	♄ Stationary.		
	10	15	50	☌ ♆ ☾ .... ♆ −	5	45
	11	6	43	☌ ♂ ☾ .... ♂ −	1	34
	16	11	22	☌ ♃ ☾ .... ♃ +	3	15
	18	5	–	□ ♂ ☉		
	19	12	–	☿ Greatest Hel. Lat S.		
	19	15	–	☉ enters ♈, Spring com.		
	21	10	–	♀ Greatest brilliancy.		
	22	7	23	☌ ♅ ☾ .... ♅ +	5	18
	22	10	48	☌ ♄ ☾ .... ♄ +	7	15
	26	6	–	♀ Greatest Hel. Lat. N.		
Apr.	1	10	–	☌ ☿ ☉ Superior.		
	1	16	52	☌ ☿ ☾ .... ☿ −	5	54
	4	6	52	☌ ♀ ☾ .... ♀ +	1	35

	d	h	m		°	′
Apr.	6	11	–	♀ Stationary.		
	6	23	45	☌ ♆ ☾ .... ♆ −	5	29
	7	13	–	☿ in ☊		
	7	21	–	☌ ♂ ε Geminorum . ♂ −	0	2
	8	15	52	☌ ♂ ☾ .... ♂ −	0	50
	12	3	–	☿ in Perihelion.		
	12	17	56	☌ ♃ ☾ .... ♃ +	3	8
	16	8	–	♂ Greatest Hel. Lat. N.		
	16	16	–	☌ ☿ ♀ .... ☿ −	5	13
	18	15	20	☌ ♅ ☾ .... ♅ +	5	9
	18	18	2	☌ ♄ ☾ .... ♄ +	7	10
	22	11	–	☿ Greatest Hel. Lat. N.		
	25	23	–	♃ Stationary.		
	27	22	–	☿ Greatest elong. E.	20	43
	28	1	–	☌ ♀ ☉ Inferior.		
	30	18	20	☌ ♀ ☾ .... ♀ −	0	22
May	2	23	26	☌ ☿ ☾ .... ☿ −	2	6
	4	7	16	☌ ♆ ☾ .... ♆ −	5	14
	7	4	35	☌ ♂ ☾ .... ♂ +	0	22
	9	17	–	☿ Stationary.		
	10	2	42	☌ ♃ ☾ .... ♃ +	3	20
	15	22	–	☿ in ☋		
	16	0	26	☌ ♅ ☾ .... ♅ +	5	7
	16	1	54	☌ ♄ ☾ .... ♄ +	7	11
	17	1	–	☍ ♅ ☉		
	17	9	–	♀ Stationary.		
	17	12	–	☍ ♄ ☉		
	20	13	–	☌ ☿ ☉ Inferior.		
	21	7	–	♀ in ☋		
	21	11	–	□ ♃ ☉		
	21	12	–	♂ in Aphelion.		
	24	19	–	☌ ♂ η Cancri ... ♂ −	0	2
	26	3	–	☿ in Aphelion.		
	27	18	6	☌ ♀ ☾ .... ♀ −	6	32
	29	19	2	☌ ☿ ☾ .... ☿ −	8	27
	31	14	55	☌ ♆ ☾ .... ♆ −	5	6
June	1	19	–	☿ Stationary.		
	3	12	–	♀ Greatest brilliancy.		
	4	18	10	☌ ♂ ☾ .... ♂ +	1	49
	6	13	30	☌ ♃ ☾ .... ♃ +	3	43
	10	0	–	☌ ♆ ☉		
	12	9	17	☌ ♅ ☾ .... ♅ +	5	12
	12	9	31	☌ ♄ ☾ .... ♄ +	7	15
	15	7	–	☿ Greatest elong. W.	23	4
	15	12	–	☿ Greatest Hel. Lat. S.		
	18	8	–	☌ ♄ ♅ .... ♄ +	2	3
	20	11	–	☉ enters ♋, Summer com.		
	24	15	–	♀ in Aphelion.		
	25	13	4	☌ ♀ ☾ .... ♀ −	8	38
	27	19	26	☌ ☿ ☾ .... ☿ −	5	11
	27	23	14	☌ ♆ ☾ .... ♆ −	5	3
	29	0	–	☌ ☿ ♆ .... ☿ +	0	14

WASHINGTON MEAN TIME.

PLANETARY CONSTELLATIONS

	d	h	m	Configuration		°	′
July	1	9	-	⊕ in Aphelion.			
	3	8	31	☌ ♂ ☾	♂ +	3	21
	4	2	24	☌ ♃ ☾	♃ +	4	10
	4	12	-	☿ in ☊			
	7	11	-	♀ Greatest elong. W.		45	44
	9	2	-	☿ in Perihelion.			
	9	16	10	☌ ♄ ☾	♄ +	7	18
	9	16	44	☌ ♅ ☾	♅ +	5	18
	15	5		☌ ☿ ☉ Superior.			
	17	4	-	♀ Greatest Hel. Lat. S.			
	19	10	-	☿ Greatest Hel. Lat. N.			
	24	22		☌ ♂ ♃	♂ −	0	7
	25	2	24	☌ ♀ ☾	♀ −	6	44
	25	8	19	☌ ♆ ☾	♆ −	5	1
	28	.	-	☉ Eclipsed, vis. at Wash.			
	28	4	-	☌ ♀ ♆	♀ −	1	21
	28	8	-	♄ Stationary.			
	30	7	38	☌ ☿ ☾	☿ +	3	18
	31	17	40	☌ ♃ ☾	♃ +	4	36
	31	23	15	☌ ♂ ☾	♂ +	4	41
Aug.	2	8		♅ Stationary.			
	5	22	12	☌ ♄ ☾	♄ +	7	13
	5	22	45	☌ ♅ ☾	♅ +	5	19
	11	21	-	☿ in ☋			
	12	13	-	☌ ☿ ♃	☿ −	1	14
	16	10	-	□ ♄ ☉			
	17	2	-	□ ♅ ☉			
	21	17	48	☌ ♆ ☾	♆ −	4	58
	22	2		☿ in Aphelion.			
	24	1	24	☌ ♀ ☾	♀ −	2	31
	25	7	-	☌ ♄ ♅	♄ +	1	48
	26	5		☿ Greatest elong. E.		27	18
	28	11	21	☌ ♃ ☾	♃ +	5	2
	29	13	35	☌ ☿ ☾	☿ +	1	50
	29	14	18	☌ ♂ ☾	♂ +	5	32
Sept.	2	4	44	☌ ♅ ☾	♅ +	5	12
	2	5	4	☌ ♄ ☾	♄ +	6	58
	8	9		☿ Stationary.			
	11	10	-	☿ Greatest Hel. Lat. S.			
	11	11	-	♀ in ☊			
	12	13	-	☌ ♃ ☉			
	14	10	-	□ ♆ ☉			
	18	2	27	☌ ♆ ☾	♆ −	4	48
	21	19		☌ ☿ ☉ Inferior.			
	22	2		☉ enters ♎, Autumn com.			
	23	6	54	☌ ♀ ☾	♀ +	2	48
	24	15		♆ Stationary.			
	25	7	4	☌ ♃ ☾	♃ +	5	27
	25	9	37	☌ ☿ ☾	☿ +	2	35
	27	5	51	☌ ♂ ☾	♂ +	5	44
	27	6		☌ ☿ ♃	☿ −	2	17
	29	12	38	☌ ♅ ☾	♅ +	4	58
	29	14	33	☌ ♄ ☾	♄ +	6	16
Sept.	30	2		☿ Stationary.			
	30	11	-	☿ in ☊			
Oct.	5	1		☿ in Perihelion.			
	5	15	-	☌ ☿ ♃	☿ +	0	12
	7	9	-	☿ Greatest elong. W.		18	2
	15	1	-	♀ in Perihelion.			
	15	9	-	☿ Greatest Hel. Lat. N.			
	15	9	43	☌ ♆ ☾	♆ −	4	35
	19	4		☌ ♀ ♃	♀ +	0	28
	23	3	36	☌ ♃ ☾	♃ +	5	55
	23	11	16	☌ ♀ ☾	♀ +	6	39
	24	19	35	☌ ☿ ☾	☿ +	6	57
	25	22	20	☌ ♂ ☾	♂ +	5	12
	26	23	39	☌ ♅ ☾	♅ +	4	44
	27	3	31	☌ ♄ ☾	♄ +	6	14
	30	21	-	♂ in ☋			
Nov.	5	23	-	♀ Greatest Hel. Lat. N.			
	7	12	-	☌ ☿ ☉ Superior.			
	7	20		☿ in ☋			
	11	15	20	☌ ♆ ☾	♆ −	4	27
	12	2		☌ ☿ ♂	☿ −	0	22
	15	19		☌ ☿ ♅	☿ −	1	4
	18	1		☿ in Aphelion.			
	18	7		☌ ☿ ♄	☿ −	2	54
	19	22	52	☌ ♃ ☾	♃ +	6	24
	20	15	-	☌ ♅ ☉			
	20	16		☌ ♂ ♅	♂ −	0	24
	20	19		☌ ♂ ☉			
	22	9	29	☌ ♀ ☾	♀ +	6	39
	23	13	11	☌ ♅ ☾	♅ +	4	36
	23	16	9	☌ ♂ ☾	♂ +	4	4
	23	19	14	☌ ♄ ☾	♄ +	5	57
	24	8	31	☌ ☿ ☾	☿ +	2	0
	24	13		☌ ♄ ☉			
	27	1		☌ ♂ ♄	♂ −	2	2
Dec.	7	21		☌ ♀ ♅	♀ +	0	47
	8	9		☿ Greatest Hel. Lat. S.			
	8	20	3	☌ ♆ ☾	♆ −	4	26
	12	3		☌ ♀ ♄	♀ −	0	56
	12	3		☍ ♆ ☉			
	17	14	22	☌ ♃ ☾	♃ +	6	50
	20	4		☿ Greatest elong. E.		20	3
	20	20		☉ enters ♑, Winter com.			
	21	3	6	☌ ♅ ☾	♅ +	4	34
	21	11	27	☌ ♄ ☾	♄ +	5	47
	22	5	1	☌ ♀ ☾	♀ +	3	40
	22	11	34	☌ ♂ ☾	♂ +	2	26
	24	11	41	☌ ☿ ☾	☿ −	0	24
	27	11		☿ in ☊			
	27	14	-	☿ Stationary.			
	30	2		□ ♃ ☉			
	30	6		☌ ♀ ♂	♀ +	0	40

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude. From Washington.	Longitude. From Greenwich.
	° ′ ″	′ ″		h m s	h m s
Abastuman . . .	+41 42 24	− 11 35.5	9.999351	− 7 59 37	− 2 51 25
Åbo	+60 26 56.8	− 10 2.1	9.998887	− 6 37 18.45	− 1 29 6.41
Adelaide . . .	−34 55 33.8	+ 10 56.8	9.999520	−14 22 32.3	− 9 14 20.3
Albany . . .	+42 39 49.5	− 11 38.0	9.999326	− 0 13 12.87	+ 4 54 59.17
Alfred (*N. Y.*) . .	+42 15 19.8	− 11 37.0	9.999337	+ 0 2 55.00	+ 5 11 7.04
Algiers (*Old Obs.*) .	+36 44 0	− 11 10.8	9.999476	− 5 20 28.8	− 0 12 16.8
Algiers (*New Obs.*) .	+36 47 50	− 11 11.3	9.999474	− 5 20 20.59	− 0 12 8.55
Allegheny . . .	+40 27 41.6	− 11 31.3	9.999383	+ 0 11 50.89	+ 5 20 2.93
Altona . . .	+53 32 45.3	− 11 10.2	9.999049	− 5 47 58.39	− 0 39 46.35
Amherst . . .	+42 22 17.1	− 11 37.3	9.999334	− 0 18 7.37	+ 4 50 4.67
Annapolis . . .	+38 58 53.5	− 11 24.5	9.999420	− 0 2 15.55	+ 5 5 56.49
Ann Arbor . . .	+42 16 48.0	− 11 37.0	9.999336	+ 0 26 43.15	+ 5 34 55.19
Arequipa (*Harvard*) .	−16 24	+ 6 18.4	9.999884	− 0 22 42	+ 4 45 30
Armagh . . .	+54 21 12.7	− 11 4.2	9.999029	− 4 41 36.6	+ 0 26 35.4
Athens . . .	+37 58 20.0	− 11 18.9	9.999445	− 6 43 7.7	− 1 34 55.7
Bamberg . . .	+49 53 5	− 11 30.7	9.999141	− 5 51 45.4	− 0 43 33.4
Beloit	+42 30 9.0	− 11 37.6	9.999331	+ 0 47 55.3	+ 5 56 7.3
Bergen . . .	+60 23 54	− 10 2.7	9.998888	− 5 29 24.8	− 0 21 12.8
Berkeley . . .	+37 52 21.7	− 11 18.3	9.999448	+ 3 0 50.33	+ 8 9 2.37
Berlin (*Urania*) . .	+52 31 31.8	− 11 17.0	9.999075	− 6 1 39.60	− 0 53 27.56
Berlin	+52 30 16.7	− 11 17.1	9.999075	− 6 1 46.95	− 0 53 34.91
Berne	+46 57 8.7	− 11 39.0	9.999216	− 5 37 57.7	− 0 29 45.7
Besançon . . .	+47 14 59.0	− 11 38.5	9.999208	− 5 32 9.2	− 0 23 57.2
Bethlehem . . .	+40 36 23.4	− 11 31.9	9.999379	− 0 6 40.19	+ 5 1 31.85
Birr Castle . . .	+53 5 47.0	− 11 13.3	9.999060	− 4 36 31.1	+ 0 31 40.9
Bogota . . .	+ 4 35 48	− 1 51.5	9.999991	− 0 11 13	+ 4 56 59
Bologna . . .	+44 29 47.0	− 11 40.3	9.999279	− 5 53 36.9	− 0 45 24.9
Bombay . . .	+18 53 45	− 7 8.1	9.999847	− 9 59 27.7	− 4 51 15.7
Bonn	+50 43 45.0	− 11 26.9	9.999120	− 5 36 35.33	− 0 28 23.29
Bordeaux . . .	+44 50 7.2	− 11 40.4	9.999271	− 5 6 6.63	+ 0 2 5.41
Bothkamp . . .	+54 12 9.6	− 11 5.3	9.999033	− 5 48 43.2	− 0 40 31.2
Breslau . . .	+51 6 56.5	− 11 25.0	9.999110	− 6 16 20.88	− 1 8 8.84
Brisbane . . .	−27 28 0.0	+ 9 32.2	9.999689	−15 20 17.8	−10 12 5.8
Brussels (*Uccle*) . .	+50 47 53	− 11 26.6	9.999118	− 5 25 38.2	− 0 17 26.2
Brussels . . .	+50 51 10.7	− 11 26.3	9.999117	− 5 25 40.9	− 0 17 28.9
Budapest . . .	+47 29 34.7	− 11 38.0	9.999202	− 6 24 27.4	− 1 16 15.4
Cairo	+30 4 38.2	− 10 6.5	9.999632	− 7 13 20.95	− 2 5 8.91
Cambridge (*England*) .	+52 12 51.6	− 11 18.9	9.999082	− 5 8 34.79	− 0 0 22.75
Cambridge (*Mass.*) .	+42 22 47.6	− 11 37.3	9.999334	− 0 23 41.05	+ 4 44 30.99
Cape of Good Hope .	−33 56 3.5	+ 10 48.0	9.999543	− 6 22 6.78	− 1 13 54.74
Catania . . .	+37 30	− 11 16.0	9.999457	− 6 7 52	− 0 59 40
Chapultepec . .	+19 25 17.5	− 7 18.2	9.999838	+ 1 28 26.20	+ 6 36 38.24
Charkow . . .	+50 0 10.2	− 11 30.2	9.999138	− 7 33 6.7	− 2 24 54.7
Charlottesville . .	+38 2 1.2	− 11 19.3	9.999444	+ 0 5 53.18	+ 5 14 5.22
Chicago (*Old Obs.*) .	+41 50 1.0	− 11 35.9	9.999348	+ 0 42 14.69	+ 5 50 26.73

POSITIONS OF OBSERVATORIES

(*North Latitudes and West Longitudes are Considered Positive.*)

Place	Latitude	Reduction to Geocentric Latitude	Log ρ	Longitude From Washington	Longitude From Greenwich
	° ′ ″	′ ″		h m s	h m s
Christiania	+59 54 44.0	−10 5.7	9.998809	−5 51 5.89	−0 42 53.85
Cincinnati (*New Obs.*)	+39 8 19.5	−11 25.4	9.999416	+0 29 29.25	+5 37 41.29
Cincinnati (*Old Obs.*)	+39 6 26.5	−11 25.2	9.999417	+0 29 47.01	+5 37 59.05
Clinton	+43 3 17.0	−11 38.7	9.999316	−0 6 34.59	+5 1 37.45
Coimbra	+40 12 25.8	−11 30.3	[illegible]	−4 34 37.9	+0 33 34.1
Columbia (*Missouri*)	+38 56 51.6	−11 24.4	9.999421	+1 1 6.18	+6 9 18.22
Copenhagen	+55 41 12.9	−10 51.1	9.998907	−5 58 30.96	−0 50 18.92
Cordoba	−31 25 15.5	+10 22.2	9.999602	−0 51 23.8	+4 16 48.2
Cracow	+50 3 51.9	−11 29.9	9.999137	−6 28 2.41	−1 19 50.37
Crowborough	+51 3 7	−11 25.4	9.999122	−5 8 49.3	−0 0 37.3
Dantzig	+54 21 18.0	−11 4.1	9.999029	−6 22 51.6	−1 14 39.6
Denver	+39 40 36.4	−11 27.9	9.999402	+1 51 35.59	+6 59 47.63
Dorpat	+58 22 47.1	−10 26.4	9.998934	−6 55 5.5	−1 46 53.5
Dresden	+51 2 16.8	−11 25.4	9.999112	−6 3 6.88	−0 54 54.84
Dublin	+53 23 13.0	−11 11.3	9.999053	−4 42 50.9	+0 25 21.1
Dun Echt	+57 9 36	−10 39.2	9.998962	−4 58 32.0	+0 9 40.0
Durham	+54 46 6.2	−11 0.9	9.999019	−5 1 52.2	+0 6 19.8
Dusseldorf	+51 12 25.0	−11 24.6	9.999108	−5 35 17.5	−0 27 5.5
Edinburgh	+55 57 23.2	−10 50.7	9.998991	−4 55 28.95	+0 12 43.05
Evanston (*Dearborn*)	+42 3 33.4	−11 36.5	9.999342	+0 42 30.3	+5 50 42.3
Florence (*Reale Museo*)	+43 46 4.1	−11 39.7	9.999298	−5 53 13.5	−0 45 1.5
Florence (*Arcetri*)	+43 45 14.4	11 39.7	9.999298	−5 53 15.15	−0 45 3.11
Geneva	+46 11 58.8	−11 39.0	9.999236	−5 32 48.81	−0 24 36.77
Genoa	+44 25 9.3	−11 40.2	9.999281	−5 43 53.4	−0 35 41.4
Georgetown	+38 54 25.8	−11 24.2	9.999422	+0 0 6.20	+5 8 18.24
Glasgow (*Missouri*)	+39 13 45.6	−11 25.8	9.999414	+1 3 59.93	+6 11 17.97
Glasgow (*Scotland*)	+55 52 42.6	−10 51.5	9.998993	−4 51 1.4	+0 17 10.55
Gohlis	+51 21 35.0	11 23.7	9.999104	−5 57 41.69	−0 49 29.65
Gotha (*Old Obs.*)	+50 56 5.2	−11 26.0	9.999114	−5 51 7.20	0 42 55.16
Gotha	+50 56 37.5	−11 25.9	9.999114	−5 51 2.60	0 42 50.56
Gottingen	+51 31 47.9	−11 22.8	9.999100	−5 47 58.4	0 39 46.4
Graz	+47 4 37.2	−11 38.8	9.999213	−6 10 0	−1 1 48
Greenwich	+51 28 38.1	−11 23.1	9.999101	−5 8 12.04	0 0 0.00
Grignon	+47 33 42	11 37.8	9.999201	−5 25 51	0 17 39
Hamburg	+53 33 7.0	−11 10.1	9.999049	−5 48 5.7	0 39 53.8
Hanover	+43 42 15.3	−11 39.6	9.999300	−0 19 4.11	+4 49 7.91
Harrow	+51 34 47.4	11 22.6	9.999098	−5 6 52.1	+0 1 19.9
Hastings-on-Hudson	+40 59 25	11 33.2	9.999369	−0 12 42.4	+4 55 29.6
Haverford	+40 0 40.1	−11 29.4	9.999394	−0 6 59.34	+5 1 12.70
Heidelberg	+49 24 35	−11 32.5	9.999153	−5 43 0.5	−0 34 48.5
Helsingfors	+60 9 42.6	−10 5.6	9.998805	−6 48 1.18	−1 39 49.14
Herény	+47 15 47.4	−11 38.4	9.999208	−6 14 36.7	−1 6 24.7
Hongkong	+22 18 12.[illegible]	8 10.7	9.999769	−12 44 53.[illegible]	7 36 41.9
Hudson	+41 14 42.6	11 34.1	9.999361	+0 17 32.12	+5 25 44.16
Jamaica	+18 24 51.[illegible]	6 48.[illegible]	9.999846	+0 3 17.5	+5 11 29.5

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude. From Washington.	Longitude. From Greenwich.
	° ′ ″	′ ″		h m s	h m s
Jena	+50 55 35.6	− 11 26.0	9.999115	− 5 54 32.8	− 0 46 20.8
Kalocsa	+46 31 42	− 11 39.6	9.999227	− 6 24 6.3	− 1 15 54.3
Karlsruhe	+49 0 29.6	− 11 33.9	9.999163	− 5 41 48.5	− 0 33 36.5
Kasan	+55 47 24.2	− 10 52.2	9.998995	− 8 24 41.11	− 3 16 29.07
Kew	+51 28 6	− 11 23.2	9.999101	− 5 6 56.9	+ 0 1 15.1
Kiel	+54 20 28.6	− 11 4.2	9.999030	− 5 48 47.73	− 0 40 35.69
Kiew	+50 27 11.1	− 11 28.2	9.999127	− 7 10 12.75	− 2 2 0.71
Kis Kartal	+47 41 54.8	− 11 37.5	9.999197	− 6 26 23.7	− 1 18 11.7
Königsberg	+54 42 50.4	− 11 1.3	9.999021	− 6 30 11.15	− 1 21 59.11
Kremsmünster	+48 3 23.8	− 11 36.7	9.999188	− 6 4 43.68	− 0 56 31.64
La Plata	−34 54 30.3	+ 10 56.7	9.999520	− 1 16 35.0	+ 3 51 37.0
Leiden	+52 9 20.0	− 11 19.3	9.999084	− 5 26 8.39	− 0 17 56.35
Leipzig	+51 20 6.3	− 11 23.9	9.999104	− 5 57 46.06	− 0 49 34.02
Liege (*Ougrée*)	+50 37 7	− 11 27.5	9.999123	− 5 30 27.2	− 0 22 15.2
Lisbon (*Marine Obs.*)	+38 42 17.6	− 11 23.3	9.999427	− 4 31 38.5	+ 0 36 33.5
Lisbon (*Royal Obs.*)	+38 42 31.3	− 11 23.1	9.999427	− 4 31 27.36	+ 0 36 44.68
Liverpool	+53 24 3.8	− 11 11.2	9.999053	− 4 55 54.8	+ 0 12 17.2
Lübec	+53 51 31.1	− 11 7.9	9.999042	− 5 50 57.7	− 0 42 45.7
Lund	+55 41 52.0	− 10 53.0	9.998997	− 6 0 57.06	− 0 52 45.02
Lyons	+45 41 40.8	− 11 40.3	9.999248	− 5 27 20.1	− 0 19 8.1
Madison	+43 4 37.0	− 11 38.7	9.999316	+ 0 49 25.78	+ 5 57 37.82
Madras	+13 4 8.1	− 5 7.6	9.999925	−10 29 11.39	− 5 20 59.35
Madrid	+40 24 29.7	− 11 31.1	9.999384	− 4 53 27.0	+ 0 14 45.0
Manilla	+14 35 25	− 5 40.5	9.999907	−13 12 2	− 8 3 50
Mannheim	+49 29 11.0	− 11 32.2	9.999152	− 5 42 2.56	− 0 33 50.52
Marburg	+50 48 46.9	− 11 26.5	9.999118	− 5 43 17.0	− 0 35 5.0
Markree	+54 10 31.7	− 11 5.5	9.999034	− 4 34 23.6	+ 0 33 48.4
Marseilles	+43 18 19.1	− 11 39.1	9.999310	− 5 29 46.68	− 0 21 34.64
Mauritius	−20 5 39	+ 7 30.8	9.999828	− 8 58 24.5	− 3 50 12.5
Melbourne	−37 49 53.4	+ 11 18.1	9.999449	−14 48 5.8	− 9 39 53.8
Meudon	+48 48 18	− 11 34.6	9.999169	− 5 17 7.6	− 0 8 55.6
Mexico	+19 26 1.3	− 7 18.4	9.999838	+ 1 28 14.63	+ 6 36 26.67
Middletown (*Conn.*)	+41 33 16.0	− 11 35.1	9.999355	− 0 17 34.86	+ 4 50 37.18
Milan	+45 27 59.4	− 11 40.4	9.999254	− 5 44 58.01	− 0 36 45.97
Modena	+44 38 52.8	− 11 40.4	9.999275	− 5 51 54.9	− 0 43 42.9
Moncalisri	+44 59 51	− 11 40.4	9.999266	− 5 39 1	− 0 30 49
Montreal	+45 30 17.0	− 11 40.4	9.999253	− 0 13 53.50	+ 4 54 18.54
Montsouris	+48 49 18.0	− 11 34.5	9.999168	− 5 17 32.72	− 0 9 20.68
Moscow	+55 45 19.8	− 10 52.5	9.998995	− 7 38 29.21	− 2 30 17.17
Mount Hamilton	+37 20 24.6	− 11 14.9	9.999461	+ 2 58 22.77	+ 8 6 34.81
Munich	+48 8 45.5	− 11 36.5	9.999186	− 5 54 38.17	− 0 46 26.13
Naples	+40 51 45.4	− 11 32.8	9.999372	− 6 5 12.9	− 0 57 0.9
Nashville	+36 8 54.4	− 11 6.6	9.999490	+ 0 39 0.2	+ 5 47 12.2
Natal	−29 50 47.4	+ 10 3.7	9.999637	− 7 12 13.22	− 2 4 1.18
Neuchatel	+47 0 1.2	− 11 38.9	9.999215	− 5 36 1.90	− 0 27 49.86

POSITIONS OF OBSERVATORIES

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude	Log. ρ	Longitude. From Washington	Longitude. From Greenwich
	° ′ ″	′ ″		h m s	h m s
New Haven (*Old Obs.*)	+41 18 36.5	11 34.3	[illegible]	0 16 29.90	+4 51 42.14
New Haven (*Yale Uni.*)	+41 19 22.3	11 34.4	[illegible]	0 16 31.48	+4 51 40.56
New York (*Columb. Col.*)	+40 45 23.1	11 32.4	[illegible]	0 12 18.40	+4 55 53.64
New York (RUTHERFURD)	+40 43 48.5	11 32.3	[illegible]	−0 12 15	+4 55 57
Nice	+43 43 16.9	11 [illegible]	[illegible]	5 37 24.3	0 29 12.3
Nicolaeff	+46 58 20.6	11 3[illegible]	[illegible]	7 16 5.91	2 7 53.87
Northfield	+44 27 41.6	−11 40.3	[illegible]	+1 4 23.77	+6 12 35.81
Oakland (*Cal.*)	+37 48 5	−11 17.9	9.999449	+3 0 54.58	+8 9 6.62
Odessa	+46 28 36.2	11 39.6	[illegible]	−7 11 14.4	2 3 2.4
Ogden	+41 13 8.6	11 34.0	[illegible]	+2 19 47.52	+7 27 59.56
O-Gyalla	+47 52 27.3	11 37.1	9.999192	−6 20 57.64	−1 12 45.60
Olmutz	+49 35 43	11 31.8	9.999140	−6 17 20	−1 9 8
Oxford (*Mississippi*)	+34 22 12.6	10 52.0	9.999533	+0 49 55.1	+5 58 7.1
Oxford (*Radcliffe*)	+51 45 36.0	−11 21.6	9.999994	−5 3 9.4	+0 5 2.6
Oxford (*University*)	+51 45 34.2	11 21.6	9.999994	−5 3 11.6	+0 5 0.4
Padua	+45 24 2.5	11 40.4	[illegible]	−5 55 41.24	−0 47 29.20
Palermo	+38 6 44.0	11 19.7	[illegible]	−6 1 36.7	0 53 24.7
Paramatta	33 48 49.8	+10 46.9	[illegible]	15 12 12.2	−10 4 0.2
Paris	+48 50 11.2	−11 34.5	[illegible]	−5 17 33.07	0 9 21.03
Philadelphia	+39 57 7.5	−11 29.2	[illegible]	−0 7 33.58	+5 0 38.46
Plonsk	+52 37 40.0	11 16.4	[illegible]	−6 29 44.0	−1 21 32.0
Pola	+44 51 49.0	11 40.4	[illegible]	6 3 35.06	0 55 23.02
Portsmouth	+50 48 3	−11 26.6	[illegible]	5 3 47.2	+0 4 24.8
Potsdam	+52 22 56.0	−11 17.2	[illegible]	6 0 27.9	0 52 15.9
Poughkeepsie	+41 41 18	−11 35.5	[illegible]	−0 12 38.4	+4 55 33.6
Prague	+50 5 18.5	11 2[illegible]	[illegible]	−6 5 53.5	−0 57 41.5
Princeton	+40 20 57.8	11 [illegible]	[illegible]	−0 9 34.54	+4 58 37.50
Princeton (*Halsted*)	+40 20 55.8	11 [illegible]	[illegible]	−0 9 32.60	+4 58 39.44
Providence (SEAGRAVE)	+41 49 46	11 35.9	[illegible]	−0 22 34.52	+4 45 37.52
Providence (*Ladd*)	+41 50 21	11 35.2	[illegible]	−0 22 36.09	+4 45 35.95
Pulkowa	+59 46 18.7	10 1[illegible]	[illegible]	−7 9 30.71	2 1 18.67
Quebec	+46 47 59.2	−11 [illegible]	[illegible]	−0 23 19.40	+4 44 52.64
Quito	0 14 0	+0 5.7	[illegible]	+0 7 8	+5 15 20
Riga	+56 57 7	10 41.3	[illegible]	6 44 40	1 36 28
Rio de Janeiro	22 54 23.[illegible]	+8 11.1	[illegible]	−2 15 30.6	+2 52 41.4
Rochester	+43 9 16.8	11 [illegible]	[illegible]	+0 2 9.74	+5 [illegible] 21.78
Rome (*Coll. Rom.*)	+41 53 53.6	11 [illegible]	[illegible]	−5 58 7.5[illegible]	0 4[illegible] 55.55
Rome (*Capitol*)	+41 53 33.51	−11 [illegible]	[illegible]	−5 58 8.56	0 4[illegible] 56.52
Rome (*Vatican*)	+41 54 17	−11 [illegible]	[illegible]	5 58 1.4	0 4[illegible] 49.4
Roosdon	+50 42 38	−11 27.0	[illegible]	−4 56 13.1	+0 11 5[illegible].9
Rugby	+52 22 5	−11 18.0	[illegible]	−5 3 10.1	+0 5 1.9
San Fernando	+36 27 41.5	−11 8.2	[illegible]	−4 43 22.4	+0 24 40.6
San Francisco	+37 47 27.7	11 1[illegible]	[illegible]	+3 1 30.[illegible]	+8 9 42.7[illegible]
Santiago de Chile	33 26 42.0	+1[illegible] 41.4	[illegible]	−0 25 25.7	+4 42 46.3
Schwerin	+53 37 3[illegible].9	11 [illegible]	[illegible]	5 53 52.9	0 45 40.9

POSITIONS OF OBSERVATORIES.

(*North Latitudes and West Longitudes are Considered Positive.*)

Place.	Latitude.	Reduction to Geocentric Latitude.	Log ρ.	Longitude. From Washington.	Longitude. From Greenwich.
	° ′ ″	′ ″		h m s	h m s
South Hadley . .	+42 15 18.2	− 11 37.0	9.999337	− 0 17 51.75	+ 4 50 20.29
Speier	+49 18 55.2	− 11 32.9	9.999156	− 5 41 57.66	− 0 33 45.62
St. Louis . . .	+38 38 3.6	− 11 22.7	9.999429	+ 0 52 37.07	+ 6 0 49.11
St. Petersburg . .	+59 56 29.7	− 10 8.4	9.998898	− 7 9 25.50	− 2 1 13.46
St. Petersburg (*Univ.*)	+59 56 32.0	− 10 8.4	9.998898	− 7 9 23.45	− 2 1 11.41
Stockholm . . .	+59 20 34.0	− 10 15.5	9.998912	− 6 20 26.02	− 1 12 13.98
Stonyhurst . . .	+53 50 40	− 11 8.0	9.999042	− 4 58 19.36	+ 0 9 52.68
Strassburg (*New Obs.*)	+48 35 0.8	− 11 35.3	9.999174	− 5 39 16.69	− 0 31 4.65
Strassburg (*Old Obs.*).	+48 34 53.8	− 11 35.3	9.999174	− 5 39 14.53	− 0 31 2.49
Sydney . . .	−33 51 41.1	+ 10 47.3	9.999545	−15 13 0.9	−10 4 48.9
Syracuse . . .	+43 2 13.1	− 11 38.6	9.999317	− 0 3 38.68	+ 5 4 33.36
Tacubaya . . .	+19 24 17.5	− 7 17.8	9.999839	+ 1 28 34.45	+ 6 36 46.49
Taschkent . . .	+41 19 32.2	− 11 34.4	9.999361	− 9 45 22.84	− 4 37 10.80
Tokio	+35 39 17.5	− 11 2.8	9.999502	−14 27 10.0	− 9 18 58.0
Toronto . . .	+43 39 35.9	− 11 39.6	9.999301	+ 0 9 22.61	+ 5 17 34.65
Toulouse . . .	+43 36 45.3	− 11 39.5	9.999302	− 5 14 3.1	− 0 5 51.1
Trieste . . .	+45 38 45.4	− 11 40.3	9.999250	− 6 3 15.05	− 0 55 3.01
Troy (*N. Y.*) . .	+42 43 52.9	− 11 38.1	9.999325	− 0 13 29.75	+ 4 54 42.29
Tulse Hill . . .	+51 26 47.0	− 11 23.3	9.999102	− 5 7 44.3	+ 0 0 27.7
Turin	+45 4 8.4	− 11 40.4	9.999265	− 5 38 59.27	− 0 30 47.23
Twickenham . .	+51 27 4.2	− 11 23.3	9.999102	− 5 6 58.9	+ 0 1 13.1
Upsala (*New Obs.*) .	+59 51 29.4	− 10 9.3	9.998900	− 6 18 42.27	− 1 10 30.23
Utrecht . . .	+52 5 9.5	− 11 19.7	9.999086	− 5 28 43.7	− 0 20 31.7
Venice . . .	+45 25 49.5	− 11 40.4	9.999255	− 5 57 37.8	− 0 49 25.8
Vienna (*Josephstadt*) .	+48 12 53.8	− 11 36.2	9.999183	− 6 13 37.3	− 1 5 25.3
Vienna (*New Obs.*) .	+48 13 55.4	− 11 36.2	9.999183	− 6 13 33.53	− 1 5 21.49
Vienna (*Old Obs.*) .	+48 12 35.5	− 11 36.3	9.999184	− 6 13 43.74	− 1 5 31.70
Vienna (*Ottakring*) .	+48 12 47.2	− 11 36.2	9.999183	− 6 13 23.15	− 1 5 11.11
Warsaw . . .	+52 13 5.7	− 11 18.9	9.999082	− 6 32 19.4	− 1 24 7.4
Washington . .	+38 53 38.8	− 11 24.1	9.999422	0 0 0	+ 5 8 12.04
Washington (*New Obs.*)	+38 55 14.7	− 11 24.2	9.999422	+ 0 0 3.67	+ 5 8 15.71
Washington (*Smithsonian*)	+38 53 17.3	− 11 24.1	9.999422	− 0 0 5.8	+ 5 8 6.2
Wellington . . .	−41 18 0.6	+ 11 34.3	9.999361	−16 47 17.9	−11 39 5.9
West Point (*Old Obs.*)	+41 23 31	− 11 34.6	9.999359	− 0 12 22.71	+ 4 55 49.33
West Point (*New Obs.*)	+41 23 22.1	− 11 34.6	9.999359	− 0 12 21.49	+ 4 55 50.55
Wilhelmshaven . .	+53 31 52.0	− 11 10.3	9.999050	− 5 40 47.25	− 0 32 35.21
Williamstown (*Mass.*).	+42 42 30	− 11 38.0	9.999325	− 0 15 22	+ 4 52 50
Williamstown (*Victoria*)	−37 52 7.2	+ 11 18.3	9.999448	−14 47 50.8	− 9 39 38.8
Wilna	+54 40 59.1	− 11 1.6	9.999021	− 6 49 21.0	− 1 41 9.0
Windsor . . .	−33 36 30.8	+ 10 44.9	9.999551	−15 11 32.55	−10 3 20.51
Zürich . . .	+47 22 40.0	− 11 38.2	9.999205	− 5 42 24.4	− 0 34 12.4

ON THE ARRANGEMENT AND USE OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC.

PART I—THE EPHEMERIS FOR THE MERIDIAN OF GREENWICH.

The greater portion of this Ephemeris, embracing the positions of the sun and moon; the distances of the moon from the centres of the sun and of the four most conspicuous planets, and from certain fixed stars, the ephemerides of the planets Mercury, Venus, Mars, Jupiter, and Saturn, is designed for the special use of navigators. The remainder contains the ephemerides of Uranus and Neptune, the heliocentric co-ordinates of the seven major planets, the rectangular equatorial co-ordinates of the sun, the moon's longitude and latitude, data for the libration of the moon, the obliquity of the ecliptic, the equation of the equinoxes, etc.

TIME.

Astronomers make use of two different kinds of time: (1) mean solar time, which is to be distinguished from true, or apparent solar time; and sidereal time

Solar Time.—Solar time is that used for all the purposes of ordinary life, and is measured by the daily motion of the sun. A *Solar Day* is the interval of time between two successive transits of the sun over the same meridian, and the hour angle of the sun is called *Solar Time*. This is the most natural and direct measure of time. But the intervals between the successive returns of the sun to the same meridian are not exactly equal, owing to the varying motion of the earth around the sun, and to the obliquity of the ecliptic. The intervals between the sun's transits over the meridian being unequal it is impossible to regulate a clock or chronometer so that it shall accurately follow the sun.

To avoid the irregularity which would arise from using the true sun as the measure of time, a fictitious sun, called the *Mean Sun*, is supposed to move in the equator with a uniform velocity. This mean sun is supposed to keep, on the average, as near the real sun as is consistent with perfect uniformity of motion, it is sometimes in advance of it, and sometimes behind it, the greatest deviation being about 16 minutes of time.

Mean Solar Time, which is perfectly equable in its increase, is measured by the motion of this mean sun. The clocks in ordinary use and the chronometers used by navigators are regulated to mean solar time.

True, or *Apparent Solar Time* is measured by the motion of the real sun.

The difference between apparent and mean time is called the *Equation of Time*. By means of it, we change apparent to mean time, or the reverse. Thus, if the apparent time be given, the mean time corresponding to it will be obtained by adding or subtracting the equation of time, according to the precept at the head of the column in which it is found, on page I of the Calendar for each month. If the mean time be given, the apparent time is obtained by applying the equation of time as directed by the precept on page II of the Calendar.

Sidereal Time.—Sidereal time is measured by the daily motion of the stars, or, as it is used by astronomers, by the daily motion of that point in the equator from which the true right ascension of the stars is counted. This point is the vernal equinox, and its hour-angle is called *Sidereal Time*. Astronomical clocks regulated to sidereal time, are called sidereal clocks.

A *Sidereal Day* is the interval of time between the transit of the vernal equinox over the meridian, and its next succeeding return to the same meridian. It is about $3^m\ 56^s$ shorter than the mean solar day, 365¼ solar days, or a year being divided into 366¼ sidereal days.

It is divided into 24 hours. The sidereal hours are counted from 0 to 24, commencing with the instant of the passage of the true vernal equinox over the upper meridian, and ending with its return to the same meridian. About March 21st of each year the sidereal clock agrees with the mean time, or ordinary clock, and the former gains on the latter about $3^m\ 56^s$ per day, so that at the end of a year it will have gained an entire day, and will again agree with the mean time clock.

Day.—The *Civil Day*, according to the customs of society, commences at midnight and comprises twenty-four hours, from one midnight to the next following. The hours are counted from 0 to 12 from midnight to noon, after which they are again reckoned from 0 to 12 from noon to midnight. Thus the day is divided into two periods of 12 hours each, of which the first is marked A. M., and the last is marked P. M.

The *Astronomical Day* begins at noon on the civil day of the same date. It also comprises twenty-four hours, but they are reckoned from 0 to 24, and from the noon of one day to that of the next following. The astronomical as well as the civil time may be either apparent or mean, according as it is reckoned from apparent noon or from mean noon.

The civil day begins twelve hours before the astronomical day; therefore the first period of the civil day answers to the last part of the preceding astronomical day; and the last period of the civil day corresponds to the first part of the same astronomical day. Thus, January 9th, 2 o'clock, A. M., civil time, is January 8th, 14^h, astronomical time; and January 9th, 2 o'clock, P. M., civil time, is also January 9th, 2^h, astronomical time. The rule, then, for the transformation of civil time into astronomical time is this: *If the civil time is marked A. M., take one from the day and add twelve to the hours, and the result is the astronomical time wanted; if the civil time is marked P. M., take away the designation P. M., and the astronomical time is had without further change.*

To change astronomical to civil time, we simply write P. M. after it, if it is less than 12 hours. If greater than 12 hours, we subtract 12 hours from it, add 1 to the days, and write A. M. For example, January 3d, 23 hours, astronomical time, is January 4th, 11 o'clock, A. M., civil time.

If the longitude from Greenwich be expressed in time, and, when *west, added* to the local time, or, when *east, subtracted* from the local time, the result is the corresponding Greenwich time. If the local mean time is used, the result is the Greenwich mean time, which ordinarily is that required for the use of this Ephemeris. The rule is the same, whether we use mean or sidereal time.

THE CALENDAR.

The Calendar is divided into twelve months, and to each month are assigned eighteen pages, the contents of which are as follow:—

Page I contains, for Greenwich apparent noon of each day, *The Sun's Apparent Right Ascension* and *Declination*, and the *Equation of Time*. Adjoining columns contain the differences of these quantities for one hour. By multiplying this difference by the hours and parts of an hour from Greenwich apparent noon, and adding the amount to, or subtracting it from, the quantity at noon, according as that quantity is increasing or decreasing, we obtain the value of any quantity for any given Greenwich apparent time. The hourly differences are given for the instant of apparent noon at Greenwich, and, when greater accuracy is required, should be first interpolated for half the hours and parts of an hour of the Greenwich apparent time.

This page is chiefly used when the sun is observed on the meridian, and the local apparent time is $0^h\ 0^m\ 0^s$. The longitude from Greenwich expressed in time, if west, is at this instant the Greenwich apparent time, or time after Greenwich apparent noon; if east, the time before Greenwich apparent noon. The longitude of any place is therefore employed in reducing the quantities on this page to apparent noon at the place.

The right ascension of the sun thus reduced is the sidereal time of local apparent noon The difference between it and the clock time of the meridian passage of the sun is the error of the clock on sidereal time

The declination of the sun reduced to the meridian, or apparent noon, of the place, is required in finding the latitude from a meridian altitude of the sun.

As an example of the use of page I:--

Let the sun's declination be required at apparent noon, 1897, May 27, at a place whose longitude is 179° 40′, or $11^h\ 58^m\ 40^s$ east from Greenwich:

		h	m	s
Local apparent time . . .	May 27.	0	0	0
Longitude from Greenwich (subtractive) . .		11	58	40
Greenwich apparent time	May 26	12	1	20

Reducing the minutes and seconds to decimals of an hour, we find that this moment is $12^h.022$ after Greenwich apparent noon on May 26, or $11^h.978$ before Greenwich apparent noon on May 27.

On page 74 of the Ephemeris we find that the change of declination in one hour is

	″
May 26 at Greenwich apparent noon . . .	+ 25.55
May 27. at Greenwich apparent noon . . .	+ 24.63
Difference for one day	0.92

If we want to be very exact, we find the amount of this hourly difference for the time which is half way between Greenwich noon and the time of observation; that is, for 6 hours after Greenwich noon of the 26th, this being half of 12 hours. Six hours is 0.25 of a day; so the calculation is as follows:—

	″
Difference for one hour, May 26 . . .	25.55
Change for 0.25 of a day or 0″.92 × 0.25 . . .	− 0.23
Difference at 6 hours after noon . . .	25.32
25″.32 × 12.022 = 304″.4 = 5′ 4″.4	

	° ′ ″
Declination at Greenwich noon, May 26 . . .	N 21 13 24.0
Change in 12.022 hours (additive) . . .	5 4.4
Sun's declination at time of observation . .	N 21 18 28.4

When the time of observation is only a few hours before Greenwich noon, it may be better to count the longitude backward from this nearest noon Thus, in the example just given, the time is $11^h.978$ before Greenwich noon of May 27, half this interval is about 0.25 of a day, and the hourly motion for the middle of the interval is 24″.86 Then, we find:—

	° ′ ″
Declination at Greenwich noon, May 27	N 21 23 26.2
Product of 24″.86 × 11.978 = 297″.8 (subtractive) .	4 57.8
Sun's declination at time of observation	N 21 18 28.4

It will always be well to make the calculation by both methods, as their agreement will show both to be right

At sea it is ordinarily sufficient to have the declination to the nearest half minute, and the reduction may be found by Table 12 of Bowditch's *American Practical Navigator*

The equation of time, as has been before explained, is the number of minutes and seconds to be added to or subtracted from the apparent time, or the time given by an observation of the sun, to obtain the mean time The heading of the column directs the manner in which the equation is to be applied When there is a change in the course of the month from addition to subtraction or the reverse (as in the months of April and June), the two different directions are separated by a line, while a corresponding line below points out the dates between which the change takes place The equation of time, as given on page I, is the mean time of apparent noon, or the hour-angle of the mean sun at that instant.

It is divided into 24 hours. The sidereal hours are counted from 0 to 24, commencing with the instant of the passage of the true vernal equinox over the upper meridian, and ending with its return to the same meridian. About March 21st of each year the sidereal clock agrees with the mean time, or ordinary clock, and the former gains on the latter about $3^m\ 56^s$ per day, so that at the end of a year it will have gained an entire day, and will again agree with the mean time clock.

Day.—The *Civil Day*, according to the customs of society, commences at midnight, and comprises twenty-four hours, from one midnight to the next following. The hours are counted from 0 to 12 from midnight to noon, after which they are again reckoned from 0 to 12 from noon to midnight. Thus the day is divided into two periods of 12 hours each, of which the first is marked A. M., and the last is marked P. M.

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The civil day begins twelve hours before the astronomical day; therefore the first period of the civil day answers to the last part of the preceding astronomical day; and the last period of the civil day corresponds to the first part of the same astronomical day. Thus, January 9th, 2 o'clock, A. M., civil time, is January 8th, 14^h, astronomical time; and January 9th, 2 o'clock, P. M., civil time, is also January 9th, 2^h, astronomical time. The rule, then, for the transformation of civil time into astronomical time is this: *If the civil time is marked A. M., take one from the day and add twelve to the hours, and the result is the astronomical time wanted; if the civil time is marked P. M., take away the designation P. M., and the astronomical time is had without further change.*

To change astronomical to civil time, we simply write P. M. after it, if it is less than 12 hours. If greater than 12 hours, we subtract 12 hours from it, add 1 to the days, and write A. M. For example, January 3d, 23 hours, astronomical time, is January 4th, 11 o'clock, A. M., civil time.

If the longitude from Greenwich be expressed in time, and, when *west*, *added* to the local time, or, when *east*, *subtracted* from the local time, the result is the corresponding Greenwich time. If the local mean time is used, the result is the Greenwich mean time, which ordinarily is that required for the use of this Ephemeris. The rule is the same, whether we use mean or sidereal time.

THE CALENDAR.

The Calendar is divided into twelve months, and to each month are assigned eighteen pages, the contents of which are as follow:—

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This page is chiefly used when the sun is observed on the meridian, and the local apparent time is $0^h\ 0^m\ 0^s$. The longitude from Greenwich expressed in time, if west, is at that instant the Greenwich apparent time, or time after Greenwich apparent noon; if east, it is time before Greenwich apparent noon. The longitude of any place is therefore employed in reducing the quantities on this page to apparent noon at the place.

The right ascension of the sun thus reduced is the sidereal time of local apparent noon. The difference between it and the clock time of the meridian passage of the sun is the error of the clock on sidereal time.

The declination of the sun reduced to the meridian, or apparent noon, of the place, is required in finding the latitude from a meridian altitude of the sun.

As an example of the use of page I:—

Let the sun's declination be required at apparent noon, 1897, May 27, at a place whose longitude is 179° 40′, or $11^h\ 58^m\ 40^s$ east from Greenwich:

		h	m	s
Local apparent time . . .	May 27.	0	0	0
Longitude from Greenwich (subtractive) . .		11	58	40
Greenwich apparent time	May 26	12	1	20

Reducing the minutes and seconds to decimals of an hour, we find that this moment is $12^h.022$ after Greenwich apparent noon on May 26, or $11^h.978$ before Greenwich apparent noon on May 27.

On page 74 of the Ephemeris we find that the change of declination in one hour is

	″
May 26, at Greenwich apparent noon . . .	+ 25.55
May 27, at Greenwich apparent noon . . .	+ 24.63
Difference for one day	− 0.92

If we want to be very exact, we find the amount of this hourly difference for the time which is half way between Greenwich noon and the time of observation; that is, for 6 hours after Greenwich noon of the 26th, this being half of 12 hours. Six hours is 0.25 of a day; so the calculation is as follows:—

		°	′	″
Difference for one hour, May 26				25.55
Change for 0.25 of a day or 0.92 × 0.25 . . .				− 0.23
Difference at 6 hours after noon . . .				25.32
25″.32 × 12.022 = 304″.4 = 5′ 4″.4				
Declination at Greenwich noon, May 26 . . .	N	21	13	24.0
Change in 12.022 hours (additive) . . .			5	4.4
Sun's declination at time of observation . . .	N	21	18	28.4

When the time of observation is only a few hours before Greenwich noon, it may be better to count the longitude backward from this nearest noon. Thus, in the example just given, the time is $11^h.978$ before Greenwich noon of May 27, half this interval is about 0.25 of a day, and the hourly motion for the middle of the interval is 24″.86. Then, we find:—

		°	′	″
Declination at Greenwich noon, May 27	N	21	23	26.2
Product of 24″.86 × 11.978 = 297″.8 (subtractive) . .			4	57.8
Sun's declination at time of observation	N	21	18	28.4

It will always be well to make the calculation by both methods, as their agreement will show both to be right.

At sea it is ordinarily sufficient to have the declination to the nearest half minute, and the reduction may be found by Table 12 of Bowditch's *American Practical Navigator*.

The equation of time, as has been before explained, is the number of minutes and seconds to be added to or subtracted from the apparent time, or the time given by an observation of the sun, to obtain the mean time. The heading of the column directs the manner in which the equation is to be applied. When there is a change in the course of the month from addition to subtraction or the reverse, as in the months of April and June, the two different directions are separated by a line, while a corresponding line below points out the dates between which the change takes place. The equation of time, as given on page I, is the mean time of apparent noon, or the hour-angle of the mean sun at that instant.

The Sun's Semidiameter and the *Sidereal Time of Semidiameter Passing Meridian* are also given on page I. The sun's semidiameter is used in reducing the altitude of the upper or lower limb of the sun to the altitude of the center; and in reducing the angular distance of the limb from the moon or some other object, to the distance from the center of the sun. The sidereal time of semidiameter passing the meridian is employed in obtaining the passage of the sun's center over the wires of a transit-instrument when the passage of one limb only has been observed. The quantity found in this column is to be added to the time of transit of the first, or western, limb; and to be subtracted from the time of transit of the second, or eastern, limb.

Page II contains, for Greenwich mean noon of each day, *The Sun's Apparent Right Ascension* and *Declination*, the *Equation of Time*, and the *Sidereal Time of Mean Noon*. The hourly changes of these quantities are also given, and may be used in reducing them to any Greenwich mean time. The hourly changes may be first interpolated for half the Greenwich time, when great precision is required, in the way described in explaining the [illegible]tion of the declination.

The right ascension and declination on pages I and II are affected by aberration, and therefore denote the *apparent* position of the *true* sun. Page II is more conveniently used when the mean time is known. This is the case in most observations of the sun out of the meridian, when the times have been noted by a clock or chronometer regulated to mean time. The quantities on this page can be reduced to mean noon of any place by interpolating for the longitude, as in the example of the sun's declination on the preceding page.

The sun's declination is required in finding the latitude of the place, the local time, and the sun's azimuth and amplitude, from observations of the sun.

The equation of time is needed in finding the mean time from observations of the sun, and the latitude from observations out of the meridian. The heading of the column directs the manner in which it is to be applied to mean time to obtain the apparent time.

The equation of time, as given on page II, is the apparent time of mean noon, and is equivalent to the hour-angle of the true sun at the instant of mean noon.

The sidereal time of mean noon is also the right ascension of the mean sun at Greenwich mean noon. It may be reduced for the longitude, or to any Greenwich mean time, by using the hourly difference, $9^s.85653$; or by Table III, appended to this volume, for reducing intervals of mean solar to sidereal time. Table 9 of BOWDITCH's *Navigator* may be used for the same purpose.

The sun's right ascension and the sidereal time of mean noon, or right ascension of the mean sun, are useful in converting mean time to sidereal time. We first find the Greenwich mean time, then the R. A. of the mean sun for this time, as last explained; this being added to the local mean time will give the sidereal time.

The sidereal time of mean noon, reduced for the longitude of the place, is also used in converting sidereal time to mean time. Subtracting the reduced value from the given sidereal time, gives the interval of sidereal time from noon. Subtracting from this the corresponding reduction of a sidereal interval to a mean time interval, in Table II appended to this volume, or Table 8 of BOWDITCH's *Navigator*, will give the mean time required. This reduction may also be found by multiplying $9^s.8296$ by the hours and parts of an hour of the given sidereal time.

As examples of the use of page II:—

1.—Let the sun's right ascension and the equation of time be required for 1897, May 15, $9^h\ 2^m\ 30^s$, A. M., mean time, at a place whose longitude is $100°\ 10'$, or $6^h\ 40^m\ 40^s$, west of Greenwich.

		h m s
Local astronomical mean time . . .	May 14.	21 2 30
Longitude from Greenwich (additive) . .		6 40 40
Greenwich mean time	May 15.	3 43 10 = $3^h.7194$

Sun's Right Ascension.	h m s	*Equation of Time.*	m s
May 15, Greenwich noon	3 30 2.99	May 15, noon	3 50.41 (additive)
H. D. $9^s.8833 \times 3.7194$	+ 0 36.76	H. D. $-0^s.026 \times 3.72$	− 0.10
	3 30 39.75		3 50.31

In this case, the hourly differences interpolated to half the interval, or $1^h.9$ after noon, have been used.

The equation of time in this example is additive to mean time. Its reduction could also have been found by Table 12 of Bowditch's *Navigator*.

2. If the sidereal time is required for the same date and time, we have:—

	h m s
May 15, Sidereal Time (at Greenwich mean noon)	3 33 53.40
Hourly difference $9^s.8565 \times 3.7194$	+ 0 36.66
Add the local astronomical mean time	21 2 30.00
The required sidereal time is (rejecting 24^h)	0 37 0.06

The reduction $0^m\ 36^s.66$ could have been found in Table III corresponding to the Greenwich mean time $3^h\ 43^m\ 10^s$, or by Table 9 of Bowditch's *Navigator*.

3.—On 1897, May 15, A. M., at a place whose longitude is 100° 10′ W., suppose the sidereal time to be $0^h\ 37^m\ 0^s.06$, and that the corresponding mean time is required.

The astronomical day is May 14, the longitude in time, + $6^h\ 40^m\ 40^s$, or + $6^h.678$.

	h m s
May 14, Sidereal Time (at Greenwich mean noon)	3 29 56.84
The H. D. $9^s.8565 \times 6.678$, or the reduction for $6^h\ 40^m\ 40^s$ in Table III	+ 1 5.82
The sidereal time of local mean noon	3 31 2.66
The given sidereal time (+ 24^h, if necessary for the following subtraction)	24 37 0.06
Subtracting the first from the second gives the sidereal interval from noon	21 5 57.40 = $21^h.0993$
$-9^s.8296 \times 21.0993$, or the reduction for $21^h\ 5^m\ 57^s.4$ in Table II	3 27.40
The required astronomical mean time is May 14,	21 2 30.00

Page III contains, for Greenwich mean noon of each day, *The Sun's True Longitude* and *Latitude*, and the *Logarithm of the Radius Vector of the Earth*. The longitudes of the sun are the true geometric longitudes, not corrected for aberration. The longitude is given in two columns, headed *λ* and *λ′*, *λ* representing the sun's longitude counted from the true equinox of the date, and *λ′*, the same co-ordinate counted from the mean equinox of the beginning of the year, (January $0^d.0$). A column of hourly differences enables the computer to obtain the sun's longitude for any hour from noon. The hourly differences of the logarithm of the radius vector are likewise given. The latitude is referred to the ecliptic of the date.

The last column on page III contains the *Mean Time of Sidereal Noon;* that is, the number of hours, minutes and seconds after Greenwich mean noon when the first point of Aries passes the meridian of Greenwich. It may be reduced to any meridian by interpolating for the longitude, or to any Greenwich sidereal time by means of the hourly difference, $-9^s.8296$. The reduction, however, can be taken directly from Table II for reducing intervals of sidereal time to mean solar time, or from Table 8 of Bowditch's *Navigator*.

This column may be used in converting sidereal time to mean time instead of that on page II. As an illustration, let us take Example 3, above.

It is seen in advance that the sum of the mean time of sidereal noon and the given sidereal time is less than 24 hours. Were it more than 24 hours, the mean time of sidereal noon should be taken out for May 13, that is the preceding astronomical day.

	h m s
May 14, the mean time of Greenwich sidereal noon is	20 26 41.64
The H. D. $9^s.8296 \times 6.678$, or the reduction for longitude, Table II	1 5.64
The mean time of local sidereal noon	20 25 36.00
Add the given sidereal time	0 37 0.06 = $0^h.6167$
The sum is	21 2 36.06
$-9^s.8296 \times 0.6167$, or the reduction for $0^h\ 37^m\ 0^s.06$ in Table II	− 0 6.06
The required astronomical mean time May 14	21 2 30.00

The Sun's Semidiameter and the *Sidereal Time of Semidiameter Passing Meridian* are also given on page I. The sun's semidiameter is used in reducing the altitude of the upper or lower limb of the sun to the altitude of the center; and in reducing the angular distance of the limb from the moon or some other object, to the distance from the center of the sun. The sidereal time of semidiameter passing the meridian is employed in obtaining the passage of the sun's center over the wires of a transit-instrument, when the passage of one limb only has been observed. The quantity found in this column is to be added to the time of transit of the first, or western, limb; and to be subtracted from the time of transit of the second, or eastern, limb.

Page II contains, for Greenwich mean noon of each day, *The Sun's Apparent Right Ascension* and *Declination*, the *Equation of Time*, and the *Sidereal Time of Mean Noon*. The hourly changes of these quantities are also given, and may be used in reducing them to any Greenwich mean time. The hourly changes may be first interpolated for half the Greenwich time, when great precision is required, in the way described in explaining the calculation of the declination.

The right ascension and declination on pages I and II are affected by aberration, and therefore denote the *apparent* position of the *true* sun. Page II is more conveniently used when the mean time is known. This is the case in most observations of the sun out of the meridian, when the times have been noted by a clock or chronometer regulated to mean time. The quantities on this page can be reduced to mean noon of any place by interpolating for the longitude, as in the example of the sun's declination on the preceding page.

The sun's declination is required in finding the latitude of the place, the local time, and the sun's azimuth and amplitude, from observations of the sun.

The equation of time is needed in finding the mean time from observations of the sun, and the latitude from observations out of the meridian. The heading of the column directs the manner in which it is to be applied to mean time to obtain the apparent time.

The equation of time, as given on page II, is the apparent time of mean noon; and is equivalent to the hour-angle of the true sun at the instant of mean noon.

The sidereal time of mean noon is also the right ascension of the mean sun at Greenwich mean noon. It may be reduced for the longitude, or to any Greenwich mean time, by using the hourly difference, $9^s.8565$; or by Table III, appended to this volume, for reducing intervals of mean solar to sidereal time. Table 9 of BOWDITCH's *Navigator* may be used for the same purpose.

The sun's right ascension and the sidereal time of mean noon, or right ascension of the mean sun, are useful in converting mean time to sidereal time. We first find the Greenwich mean time, then the R. A. of the mean sun for this time, as last explained; this being added to the local mean time will give the sidereal time.

The sidereal time of mean noon, reduced for the longitude of the place, is also used in converting sidereal time to mean time. Subtracting the reduced value from the given sidereal time, gives the interval of sidereal time from noon. Subtracting from this the corresponding reduction of a sidereal interval to a mean time interval, in Table II, appended to this volume, or Table 8 of BOWDITCH's *Navigator*, will give the mean time required. This reduction may also be found by multiplying $9^s.8296$ by the hours and parts of an hour of the given sidereal time.

As examples of the use of page II:—

1.—Let the sun's right ascension and the equation of time be required for 1897, May 15, $9^h\ 2^m\ 30^s$, A. M., mean time, at a place whose longitude is $100°\ 10'$, or $6^h\ 40^m\ 40^s$, west of Greenwich.

		h m s
Local astronomical mean time . . .	May 14.	21 2 30
Longitude from Greenwich (additive) . . .		6 40 40
Greenwich mean time	May 15.	3 43 10 = $3^h.7194$

Sun's Right Ascension.	h m s	*Equation of Time.*	m s
May 15, Greenwich noon	3 30 2.99	May 15, noon . .	3 50.41 (additive)
H. D. 9s.883 × 3.7194 . .	+ 0 36.76	H. D. − 0s.026 × 3.72 . .	− 0.10
	3 30 39.75		3 50.31

In this case, the hourly differences interpolated to half the interval, or 1h.9 after noon, have been used.

The equation of time in this example is additive to mean time. Its reduction could also have been found by Table 12 of Bowditch's *Navigator*.

2. If the sidereal time is required for the same date and time, we have:—

	h m s
May 15, Sidereal Time (at Greenwich mean noon) . . .	3 33 53.40
Hourly difference 9s.8565 × 3.7194	+ 0 36.66
Add the local astronomical mean time	21 2 30.00
The required sidereal time is (rejecting 24h) . .	0 37 0.06

The reduction 0m 36s.66 could have been found in Table III corresponding to the Greenwich mean time 3h 43m 10s, or by Table 9 of Bowditch's *Navigator*.

3.—On 1897, May 15, A. M., at a place whose longitude is 100° 10′ W., suppose the sidereal time to be 0h 37m 0s.06, and that the corresponding mean time is required.

The astronomical day is May 14, the longitude in time, + 6h 40m 40s, or + 6h.678.

		h m s	
May 14, Sidereal Time (at Greenwich mean noon)		3 29 56.84	
The H. D. 9s.8565 × 6.678, or the reduction for 6h 40m 40s in Table III .		+ 1 5.82	
The sidereal time of local mean noon		. 3 31 2.66	
The given sidereal time (+ 24h, if necessary for the following subtraction)		24 37 0.06	
Subtracting the first from the second gives the sidereal interval from noon		21 5 57.40	= 21h.0993
− 9s.8296 × 21.0993, or the reduction for 21h 5m 57s.4 in Table II		3 27.40	
The required astronomical mean time is	May 14,	21 2 30.00	

Page III contains, for Greenwich mean noon of each day, *The Sun's True Longitude* and *Latitude*, and the *Logarithm of the Radius Vector of the Earth*. The longitudes of the sun are the true geometric longitudes, not corrected for aberration. The longitude is given in two columns, headed λ and λ'; λ representing the sun's longitude counted from the true equinox of the date, and λ', the same co-ordinate counted from the mean equinox of the beginning of the year, (January 0d.0). A column of hourly differences enables the computer to obtain the sun's longitude for any hour from noon. The hourly differences of the logarithm of the radius vector are likewise given. The latitude is referred to the ecliptic of the date.

The last column on page III contains the *Mean Time of Sidereal Noon;* that is, the number of hours, minutes and seconds after Greenwich mean noon when the first point of Aries passes the meridian of Greenwich. It may be reduced to any meridian by interpolating for the longitude, or to any Greenwich sidereal time by means of the hourly difference, —9s.8296. The reduction, however, can be taken directly from Table II for reducing intervals of sidereal time to mean solar time, or from Table 8 of Bowditch's *Navigator*.

This column may be used in converting sidereal time to mean time instead of that on page II. As an illustration, let us take Example 3, above.

It is seen in advance that the sum of the mean time of sidereal noon and the given sidereal time is less than 24 hours. Were it more than 24 hours, the mean time of sidereal noon should be taken out for May 13, that is the preceding astronomical day.

		h m s	
May 14, the mean time of Greenwich sidereal noon is .		20 26 41.64	
The H. D. 9s.8296 × 6.678, or the reduction for longitude, Table II		1 5.64	
The mean time of local sidereal noon		20 25 36.00	
Add the given sidereal time . .		0 37 0.06	0h.6167
The sum is .		21 2 36.06	
− 9s.8296 × 0.6167, or the reduction for 0h 37m 0s.06 in Table II		− 0 6.06	
The required astronomical mean time	May 14	21 2 30.00	

Page IV contains *The Moon's Semidiameter* and Equatorial *Horizontal Parallax*, for each mean noon and midnight at Greenwich. Columns adjoining those of the horizontal parallax give the change of this quantity in one hour, by means of which it can be reduced to any other Greenwich mean time, in the same way as the sun's declination and the equation of time in the preceding examples. The sign plus or minus prefixed to the hourly differences, shows whether the horizontal parallax is increasing or decreasing.

The corresponding reduction of the moon's semidiameter may be readily found by multiplying the reduction of the horizontal parallax by 0.272, or by simply computing the proportional part.

If, for example, the semidiameter of the moon is to be taken out for 1897, January 4, 10^h, P. M., Greenwich mean time, we see that the difference of the semidiameters at noon and midnight of January 4 is $6''.1$; then,

$$12^h : 10^h = 6''.1 : 5''.1,$$

which is the correction to be subtracted from the semidiameter at noon, because the semidiameter is decreasing. The moon's semidiameter then, for January 4, 10^h, is $15' 45''.4$.

The moon's semidiameter and horizontal parallax are required in reducing observations of the moon. When great precision is needed, the hourly differences should be first interpolated for half the interval of Greenwich time from noon or midnight, and a correction applied to the horizontal parallax for the latitude of the place of observation.

The *Mean Time of the Moon's Upper Transit at Greenwich*, which is given on page IV to tenths of a minute, is also accompanied with a column of differences for one hour of longitude, by means of which, having the longitude converted into time, the local time of the moon's meridian passage over any other place may be computed. The reduction may be taken by simple inspection from BOWDITCH's Table 11. The last column of this page contains the *Age* of the moon, or the time elapsed since the preceding new moon, to tenths of a day.

Pages V—XII contain *The Moon's Right Ascension* and *Declination*, for each day and hour of Greenwich mean time. They are accompanied with columns of differences for one minute, which are also given at each hour. The Greenwich mean time, which is required for taking out these quantities, may be taken from a well-regulated chronometer, or obtained by applying the longitude converted into time, to the local mean time of the observer. The right ascension or declination is taken out for the day and hour of the Greenwich mean time; the *Diff. for 1 Minute* multiplied by the minutes and parts of a minute of the Greenwich time, and the product added to, or subtracted from the quantity, according as the quantity is increasing or decreasing.

Thus, suppose the moon's right ascension and declination are required for 1897, August 3, $10^h\ 10^m\ 30^s$, astronomical mean time at Greenwich:—

Right Ascension.		*Declination.*	
	h m s		° ′ ″
August 3, 10^h	12 56 24.80		S. 11 27 31.3
Diff. $2^s.1576 \times 10.5$ =	+ 22.65	$14''.434 \times 10.5$ =	− 2 31.6
August 3, $10^h\ 10^m\ 30^s$	12 56 47.45		S. 11 30 2.9

The differences interpolated for $5^m.2 = 0^h.09$ are, for the right ascension $2^s.1576$, and for the declination $14''.434$, which have been used for greater precision.

Page XII contains also the *Phases of the Moon* and the dates of the *Moon's Perigee and Apogee*, or least and greatest distances from the earth.

Pages XIII—XVIII contain the *Lunar Distances*, or the angular distances of the centre of the moon from the centre of the sun, and from the four larger planets and certain fixed stars, as they would appear to an observer at the centre of the earth. They are given for every third hour of Greenwich mean time, beginning at noon; the dates are therefore astronomical. All the distances that can be observed on the same day, are grouped together under that date; and the columns are read from left to right, across both pages of the same opening. The letter W. or E. is affixed to the name of the sun, planet or star, to indicate that it is on the west, or east side of the moon.

An observer on the earth's surface having measured a lunar distance, corrected it for errors of his instrument and for the semidiameter of the objects, and cleared it from the effects of refraction and parallax, finds the true or geocentric distance, that is, the distance as it would have appeared from the centre of the earth at the moment of observation. With this distance and the distances in the Ephemeris of the same bodies on the same day, the Greenwich mean time of the observation can be found.

To lessen the labor of computation, there is given in the Ephemeris, between every two successive distances, the logarithm of the seconds of time in which the distance changes 1″; or, as it is usually called, the *Proportional Logarithm of the Difference*. It is given for the middle instant of the two hours between which it is placed.

For computing the Greenwich time we have the following rule:—

Find in the Almanac the two distances between which the true distance falls; take out the nearer of these, the hours of Greenwich time over it, and the P. L. of Diff. between them.

Find the difference between the true distance and the distance taken from the Almanac, and from the proportional logarithm of this difference, as found in the Navigator (Table 45), subtract the P. L. of Diff. taken from the Almanac.

The result is the proportional logarithm of an interval of time to be added to the hours of Greenwich time, taken from the Almanac, when the earlier Almanac distance is used; to be subtracted from the hours of Greenwich time, when the later Almanac distance is used.

Another method is, to add the common logarithm of the difference of the true and the Almanac distances to the P. L. of Diff. of the Almanac, the sum will be the common logarithm of the correction to be applied to the hours of Greenwich time. Table 34 of BOWDITCH's *Navigator* saves the operation of reducing degrees (or hours) and minutes to seconds, and the reverse.

As the P. L. of Diff. in the Ephemeris varies, the Greenwich time found by the methods just described may not be sufficiently exact. To correct it for such variation, or second difference, take the difference between the P. L. of Diff. used and the one which follows it in the Ephemeris (or, more strictly, half the difference of the preceding and following ones). With this difference, and the first correction of the Greenwich time already found, enter Table I, appended to this volume, and take out the corresponding seconds, which are to be added to the approximate Greenwich time when the Prop. Logs. in the Ephemeris are decreasing; and subtracted when they are increasing.

Thus the Greenwich mean time of the observation can be obtained. If the observer has noted the time of observation by a chronometer, the difference of this chronometer-time and the Greenwich mean time will be the error of the chronometer on Greenwich time as found from the lunar distance. In this way lunar distances can be used as a check upon the chronometer. By a series of carefully observed lunar distances on both sides of the moon, the chronometer error may generally be ascertained within 20 or 30 seconds.

If the observer has found the local mean time of observation from the observed altitude of one of the bodies, or by a watch regulated to that time by recent observations and corrected for change of longitude in the interval, the difference of this local time and the Greenwich time found from the lunar distance will be his longitude. A longitude derived by this method should always be considered as uncertain by 5′ or more.

As an example of finding the Greenwich mean time from a lunar distance, suppose that in 1897, January 8, the corrected distance of the moon's centre from that of α Arietis is 42° 53′ 50″. [illegible]

		° ′ ″		
Corrected distance	. .	42 53 50		
Distance in Ephemeris Jan. 8, III^h	. . .	42 [illegible]	P. L.	0.2[illegible]
Difference	. . . .	0 21 [illegible]	P. L.	[illegible]
		h m s	P. L.	0.6067
Time from III^h [illegible]	. . .	+ 0 42 31		
Corr. from Table I	. . .	— 3		
Greenwich mean time Jan. 8	. . . .	3 42 28		

By a table of common logarithms, or a table of logarithms of small arcs, the reduction of the Greenwich time would be found thus:—

From Ephemeris	. . . .	P. L.	0.2965
Diff. of distances, 21′ 29″ = 1289″	. . . . .	log	3.1103
Red. of Greenwich time, $2551^s = 42^m\ 31^s$	. . . . .	log	3.4068

The result is the same as by the previous method.

Pages 218—249 contain the geocentric ephemerides of the seven major planets. The positions are referred to the equator and true equinox of the date, and corrected for aberration; they are, therefore, apparent positions. All the data except meridian passage are given for the moment of Greenwich mean noon. The column *Meridian Passage* gives the hour, minute and tenth of that passage of the planet over the meridian of Greenwich which occurs next after the noon of the date.

The right ascension and declination of a planet are required whenever it has been observed for time, latitude or azimuth. The mode of reducing them to any instant of Greenwich mean time is the same as in the examples for the sun, previously given. The local mean time of passage across any other meridian can be found by dividing the daily differences by 24, and multiplying the quotient by the hours and fractions of the longitude of the place. The product is subtractive from the time of Greenwich passage when the place is east of Greenwich, and additive when west. The corrections can never exceed one-half the change for one day.

Pages 250—263 contain the heliocentric positions of the seven major planets, and the logarithms of their distances from the earth. The heliocentric longitude is reckoned, not from the true equinox, as in the preceding ephemerides, but from the mean equinox of the date. It is, therefore, necessary to apply nutation, if the longitude from the true equinox is required. The daily motion is given for the moment of Greenwich mean noon. The column *Reduction to Orbit* gives the correction to be applied to the heliocentric longitudes in order to obtain the longitude counted along the orbit of the planet. This longitude is equal to the distance of the node from the mean equinox, plus the distance of the planet from the node. The heliocentric latitude is counted from the moving plane of the ecliptic. The *Logarithm of Radius Vector* is the logarithm of the distance of the centre of the planet from that of the sun, at each Greenwich mean noon given in the first column. The two last columns give, in the same way, the logarithm of the true distance of the centre of the planet from that of the earth. The one column gives the quantity for the Greenwich noon indicated on the left hand side of the page, and the other for the noon which is midway between that date and the date next below it. In the case of Mercury, this intermediate date is mean noon of the day immediately following; in the case of Venus, Mars, Jupiter, and Saturn, it is mean noon of the second day following; and in the case of Uranus and Neptune, mean noon of the fourth day following.

Pages 264—271 contain the rectangular co-ordinates of the centre of the sun, referred to the centre of the earth as the origin, and to the true equator and equinox of each date as the circle and point of reference. Each co-ordinate is given first for Greenwich mean noon, and in the column following for mean midnight of the same day. The columns *Reduc. to Mean Eq'x of Jan.* 0 give the corrections to be applied to the co-ordinates for noon in order to obtain the corresponding co-ordinates referred to the mean equator and the mean equinox of January 0.

Pages 272—275 give the longitude and latitude of the moon for every Greenwich mean noon and midnight. Both quantities are referred to the true ecliptic and equinox of the date.

Pages 276 and 277 contain the position of the moon's equator and the mean longitude of the moon, and a table for computing the libration of the moon. The epochs of greatest libration of the moon, together with the formulæ for finding the libration in longitude and latitude are given on page 417.

Page 278 contains, for each tenth Greenwich mean noon, the values of the principal elements arising from the motion of the equinox, and also the aberration and parallax of the sun. The column *Apparent Obliquity of the Ecliptic* (HANSEN) gives the true inclination of the earth's equator to the ecliptic, without correction for the terms depending on the moon's longitude. The *Equation of Equinoxes* (HANSEN) is really the astronomical nutation; that given *In Longitude* is the correction to be applied to the longitude of the body referred to the mean equinox, in order to obtain that longitude as referred to the true equinox When the correction is positive, the true longitudes are greater than those referred to the mean equinox; while the contrary is true when the correction has the negative sign The equation *In R. A.* is equal to that in longitude, multiplied by the cosine of the obliquity of the ecliptic

The next column gives the *Precession of Equinoxes in Longitude*, from January 0 to each of the dates following *The Sun's Aberration* is the quantity which is to be applied to the true longitude of the sun in order to obtain its apparent longitude The correction being negative shows that the apparent longitude as affected by aberration is always less than the true longitude The *Sun's Equatorial Horizontal Parallax*, given in the next column, is the angle subtended by the radius of the earth's equator, as seen from the centre of the sun.

PART II.—THE EPHEMERIS FOR THE MERIDIAN OF WASHINGTON.

Page 280 contains the formulæ for reducing the positions of the fixed stars, using the notation of BESSEL, and the constants of PETERS and STRUVE The formulæ by which the star numbers are computed are also given

Pages 281–284 contain the logarithms of the *Besselian Star Numbers, A, B, C, D,* for each Washington mean midnight These numbers serve to reduce the mean place of a star at the beginning of the Besselian fictitious year to its apparent place at the dates for which the numbers are given If used in accordance with the English and French notation, the pair of quantities A and B must be interchanged with the pair C and D; that is, A must be interchanged with C, and B with D In the first column along with the solar day is given, for certain dates, the sidereal hour of Washington mean midnight The sidereal time for which any set of quantities is given can be found by interpolation from these numbers

The following is an example of the reduction of a star to apparent place by the Besselian star-numbers -

Computation of the apparent place of δ Ophiuchi for 1897 May 29, for the upper transit at Washington.

	log a	0.4974	log b	7.2703	log c	8.4030n	log d	8.7716n
(Page 281)	log A	9.8148	log B	0.7343n	log C	0.8275n	log D	1.2808n
	log a'	0.2905n	log b'	9.2460	log c'	9.5728	log d'	8.4496
	log Aa	0.3122	log Bb	8.0146n	log Cc	9.3203	log Dd	0.0524
	log Aa'	0.7551n	log Bb'	0.6812n	log Cc'	0.4073n	log Dd'	9.7264n

Mean Place, 1897.0,	$\alpha_0 = 16^h\ 8^m\ 59^s.842$	$\delta_0 = -3°\ 25'\ 44''.62$
	$Aa = +2.052$	$Aa' = -6.10$
	$Bb = -0.010$	$Bb' = -4.80$
	$Cc = +0.209$	$Cc' = -2.55$
	$Dd = +1.128$	$Dd' = -0.53$
	$E = +0.001$	$\tau\mu' = -0.06$
	$\tau\mu = -0.001$	
Apparent Place, 1897 May 29	$\alpha = 16\ 9\ 3.221$	$\delta = -3\ 25\ 58.66$

Pages 285–292 contain the *Independent Star-Numbers*, which can be used for the same purpose The column τ gives the fraction of the year from the beginning of the fictitious year to each date These quantities are connected with those of BESSEL by the relations given on page 280, where are also found the formulæ and precepts for the application of both systems of numbers In order to use the Besselian numbers, it is necessary to have the values of the star constants, a, b, c, d, a', b', c', d' The independent star-numbers are

given in order that the apparent place of the star may be determined when it is not convenient to compute these numbers.

The following is an example of the reduction of a star to apparent place by the independent star-numbers:—

Computation of the apparent place of δ Ophiuchi for 1897, May 29, for the upper transit at Washington.

	$\alpha_0 = 242° 14'$		$\delta_0 = -\ 3° 26'$		
	$G = 337\ 30$		$G + \alpha_0 = 219\ 44$		
	$H = 199\ 25$		$H + \alpha_0 = 81\ 39$		h m s
$\log \frac{1}{15}$	8.8239	$\log \frac{1}{15}$	8.8239	$\alpha_0 =$	16 8 56.842
$\log g$	1.1514	$\log h$	1.3061	$f =$	+ 2.007
$\log \sin (G + \alpha_0)$	9.8057 *n*	$\log \sin (H + \alpha_0)$	9.9954	$(g) =$	+ 0.036
$\log \tan \delta_0$	8.7781 *n*	$\log \sec \delta_0$	0.0008	$(h) =$	+ 1.337
$\log (g)$	8.5591	$\log (h)$	0.1262	$\tau\mu =$	− 0.001
		Apparent R. A.,		$\alpha =$	16 9 0.221
$\log g$	1.1514	$\log h$	1.3061	$\delta_0 =$	− 3° 25′ 44″.62
$\log \cos (G + \alpha_0)$	9.8859 *n*	$\log \cos (H + \alpha_0)$	9.1620	$(g') =$	− 10.90
$\log (g')$	1.0373 *n*	$\log \sin \delta_0$	8.7773 *n*	$(h') =$	− 0.18
		$\log (h')$	9.2454 *n*	$(i) =$	− 2.91
				$\tau\mu' =$	− 0.06
		Apparent Dec.		$\delta =$	− 3 25 58.67
$\log i$	0.4653 *n*				
$\log \cos \delta_0$	9.9992				
$\log (i)$	0.4645 *n*				

Pages 293—301 contain the mean places of three hundred and eighty-three stars, for the beginning of the fictitious year 1897, or the moment when the sun's mean longitude is 280°.

The annual variations are to be considered as the differential coefficients of each co-ordinate with respect to the time at the beginning of the year.

In order that the list of mean places of stars may serve the purpose of a working-catalogue for the convenient use of astronomers, the position of each of the northern circumpolar stars is given in duplicate, one position being for the upper and the other for the lower culmination. The positions for the lower culmination are marked S. P. In this case, the right ascensions are the sidereal times at which the star crosses the lower meridian; and, in order to have the expressions for the co-ordinates congruous in all cases, the declinations are counted from the equator through the north pole, and therefore exceed 90°. The time of observation and the setting of the circle, in order to find a star on the meridian, are then obtained uniformly for all the stars.

Beginning with the volume of 1882, the number of stars has been greatly increased, in order to make the list more useful to field-astronomers. To show at a glance these additional stars, they are indicated in the list by an asterisk.

Pages 302—313 contain the apparent positions of the four north polar stars, α, δ and λ Ursæ Minoris, and 51 Cephei, for every upper transit at Washington. They include the terms depending on the moon's longitude. The mean solar time of transit is given in the column *Mean Solar Date*, in order that each transit above and below the pole may be readily identified. Suppose, for example, that the transit of Polaris below the pole on January 26th is to be found, and we wish to know whether it precedes or follows the upper transit of the same date. On page 302, we find that the upper transit occurs January 26.2; the lower transit, therefore, occurs January 26.7. But, the lower transit following that of July 1st (page 308), does not take place until July 2.3. Hence, the lower transit of July 1st precedes the upper one of the same date. A transit occurring very nearly at noon may also be identified without a computation to ascertain the actual mean date, by simply noting the tenth of a day in the column of *Mean Solar Date*.

Pages 314—364 contain, for every tenth upper transit at Washington, the apparent places of those stars of the preceding list which are not marked with an asterisk. The mean solar

date in each left hand column gives the day and tenth of the transit; so that each intermediate transit may be readily identified. Along with each co-ordinate is given, in small type, the change for ten days. This quantity is to be regarded as the differential coefficient corresponding to the dates for which the star-places are given.

Pages 365–376 contain the apparent right ascensions of all stars marked with an asterisk in the list of mean places. The apparent right ascension of each star is given only for that part of the year when it may readily be observed on the meridian. In the case of circumpolar stars, the right ascensions for lower, as well as upper, transit are given.

Pages 377–384 contain the apparent right ascension, declination, and semidiameter of the sun, and the sidereal time, all for Washington mean noon. Adjoining columns give the seconds of right ascension and of declination for apparent noon, that is, for the moment of transit of the sun's centre over the meridian of Washington. The hours and minutes of right ascension, and the degrees and minutes of declination are the same for both mean and apparent noon. In case they would have differed, the minute which would have been numerically larger is diminished by one, and the seconds increased by sixty, so that there is always a correspondence between the two numbers. The hourly motions in right ascension and declination are given for the moment of mean noon, but may be regarded as having the same values for apparent noon.

The *Equation of Time for Apparent Noon* is the correction to be applied to apparent time in order to obtain mean time. It is, therefore, mean time minus apparent time. Each number as given is the mean time of transit of the sun's centre over the meridian of Washington, counted from the nearest noon. The use of all the quantities is substantially the same as in the *Ephemeris for the Meridian of Greenwich*.

Pages 385–392 contain the right ascension, declination, semidiameter, and parallax of the moon, at the moment of transit over the meridian of Washington. The mean time given in the second column is that of transit of the moon's centre over this meridian. The differences for one hour of longitude are the amounts by which the local mean times of transit over a meridian one hour west of Washington exceed those given in the column *Mean Time of Transit*, supposing the rate of change to be uniform and equal to what it is at the moment of transit over the meridian of Washington. The next four columns need no especial explanation, except that the differences for one hour of longitude are computed as if the motion of the moon in right ascension were uniform. By means of them, the position of the moon can be computed with astronomical accuracy at the moment of transit over any meridian not exceeding one hour in longitude from that of Washington, by taking account of second differences. With greater longitudes of the place, the accuracy of the result obtained in this way will diminish. The columns of sidereal time of semidiameter passing meridian, etc., do not seem to need any explanation, except that they all refer to the moment of transit. The column *Bright Limbs* is given to indicate to the observer which limbs are illuminated. When two opposite limbs are both so nearly full that they can be well observed, both are indicated.

Pages 393–409 contain the geocentric apparent right ascensions and declinations of the seven major planets, and their semidiameters and horizontal parallaxes, for the moments of all those transits over the meridian of Washington which can be observed.

PART III—PHENOMENA.

This part gives the principal astronomical phenomena of the year, reduced to Washington mean time, except in the case of the eclipses and the data for the rings of Saturn, which are given in Greenwich mean time.

Pages 412–416 inclusive contain the elements necessary for computing the eclipses of the sun which occur during the year.

The eclipse-elements are given for the moment of conjunction of the sun and moon in right ascension. The subsequent tables and results are not, however, computed from these elements unchanged; but from the accurate positions of the two bodies as interpolated for each hour of the eclipse. The principal circumstances of each eclipse are as follows:—

On the line "Eclipse begins" is given the Greenwich mean time at which the earth first touches the moon's penumbra, and the longitude and latitude of the point of touching.

The "Central eclipse begins" when the axis of the moon's shadow first touches the earth, and the longitude and latitude of the point of touching follow.

"Central eclipse at noon" indicates the moment when the axis of the shadow is coincident with the plane of the meridian at the point of its intersection with the earth's surface. To the observer at this point the eclipse will be central at the moment of apparent noon.

"Central eclipse ends" and "Eclipse ends" have the converse meaning of the beginning.

Maps of the Eclipses.—The regions in which each eclipse is visible, are shown upon the maps given in connection with them. From these maps may also be derived the approximate determination of the times of beginning and ending, and of the magnitude of the eclipses at any place. The dotted curves show the outlines of the shadow for each hour of Greenwich mean time and therefore pass through all the places where the eclipse begins or ends at that hour. To find at what hour the eclipse begins at any place, we determine by inspection between what pair of these curved lines the place is situated. The eclipse will then begin between these two hours of Greenwich mean time: the fraction of the hour may be determined by dividing the hour proportionally to the space which it represents on the map. This division may be a little more exact by allowing for the changes in this space as indicated by their varying width. The Greenwich mean time thus found must be reduced to local mean time by applying the longitude.

As an example, suppose we wish to find the time at which the eclipse of 1897, July 29, begins and ends at Barbados.

For the beginning we compare the distance of the place from the curves of 2^h and 3^h and we find it to correspond to about 12 minutes from the former, therefore the time of beginning is approximately $2^h\ 12^m$; for the end we compare the distance of the place from the curves of 5^h and 6^h and find it to be about 19 minutes from the latter, therefore the approximate time of end is $5^h\ 41^m$, both of which are probably correct to within 2 or 3 minutes. Changing to local mean time the result will be:—

		Beginning.			*Ending.*		
		d	h	m	d	h	m
Greenwich mean time	July	29	2	12	29	5	41
Longitude west			3	58		3	58
Local mean time	July	28	22	14	29	1	43

In the case of total and annular eclipses, a rough estimate of the magnitude of the eclipse may be obtained from the position of the place relatively to the central line and to the limit. On the central line, the eclipse is annular or total, while on the limit, the limb of the moon only grazes that of the sun.

More Accurate Computations.—A more accurate determination of the phases as visible at any point of the earth's surface may be obtained from the Besselian elements which are given for every ten minutes of Greenwich mean time. Their geometric signification is as follows:—

Let us imagine a plane passing through the centre of the earth, perpendicular to the right line joining the centres of the sun and moon. This latter line is the axis of the moon's shadow, and the plane is called the *fundamental plane*. We take the intersection of this plane with that of the earth's equator as the axis of X, and the centre of the earth as the origin of co-ordinates. The axis of Y is perpendicular to that of X, and directed toward the north; x and y are then the co-ordinates of the point in which the axis of the shadow intersects the fundamental plane. The angle d, of which the sine and cosine are both given, is the declination of that point of the celestial sphere toward which the axis of the

shadow is directed, this direction being that from the earth toward the moon and sun. The angle μ is the Greenwich hour-angle of this same point of the celestial sphere.

The quantities l and l' are the radii of the shadow-cones upon the fundamental plane, l corresponding to the penumbra, and l' to the umbra, or annulus. The notation is that of CHAUVENET's *Spherical and Practical Astronomy*, in which l' is regarded as positive for an annular, and negative for a total eclipse.

The angles f and f', the tangents of which are given, are the angles which the elements of the respective shadow-cones make with the axis of the shadow, or, they are the semi-angles of the two cones.

At the bottom of the table are given the logarithms of the change of x, y and μ, in one minute, in order to facilitate the interpolation to any required moment.

The method of computing the eclipse from the given elements is as follows: It is premised that the moments of beginning and ending are those at which the distance of the observer from the axis of the shadow or penumbra is equal to the radius of the latter at the point of observation. To find such distance and radius we compute—

(1) The co-ordinates, ξ, η and ζ, of the observer, at some assumed moment of Greenwich mean time, as near as practicable to the true time of the required phase, together with their variations for one minute.

(2) The co-ordinates x and y of the axis of the shadow at the same moment, which, with their variations for one minute, are taken from the tables of elements.

(3) Hence, the position and motion of the observer relative to the axis of the shadow.

(4) The radius of the penumbra or umbra at a distance from the fundamental plane equal to that of the observer.

(5) Then, assuming the motions to be uniform, we determine the time required for the observer to be brought to a distance from the axis of the shadow equal to this radius.

The formulæ and directions for the several steps in the computation are as follow:

(1) Find the geocentric co-ordinates of the station referred to the earth's equator, which are represented by $\rho \cos \varphi'$ and $\rho \sin \varphi'$, ρ being the distance from the centre of the earth, and φ' the geocentric latitude. These may be obtained from geodetic tables, or may be computed from the following table by the formulæ—

$$\rho \cos \varphi' = F \cos \varphi$$
$$\rho \sin \varphi' = \frac{\sin \varphi}{G}$$

φ being, as usual, the geographic latitude.

Table for computing the Geocentric Co-ordinates of a Place.

φ	Log F		Log G	
0°	0.00000		0.00295	
5	0.00001	1	0.00294	1
10	0.00004	3	0.00291	3
15	0.00010	6	0.00285	6
20	0.00017	7	0.00278	7
25	0.00026	9	0.00269	9
30	0.00037	11	0.00258	11
35	0.00048	11	0.00247	11
40	0.00061	13	0.00234	13
45	0.00074	13	0.00221	13
50	0.00086	12	0.00209	12
55	0.00099	13	0.00196	13
60	0.00111	12	0.00184	12
65	0.00121	10	0.00174	10
70	0.00130	9	0.00165	9
75	0.00138	8	0.00157	8
80	0.00143	5	0.00152	5
85	0.00146	3	0.00149	3
90	0.00147	1	0.00147	2

For the assumed Greenwich mean time of computation, take from the table of elements the values of sin d, cos d, and μ. Put:

λ, the longitude west from Greenwich. The co-ordinates of the observer will then be:—

$$\xi = \rho \cos \varphi' \sin (\mu - \lambda)$$
$$\eta = \rho \sin \varphi' \cos d - \rho \cos \varphi' \sin d \cos (\mu - \lambda)$$
$$\zeta = \rho \sin \varphi' \sin d + \rho \cos \varphi' \cos d \cos (\mu - \lambda)$$

and their variations in one minute of mean time will be:—

$$\xi' = [7.63992]\ \rho \cos \varphi' \cos (\mu - \lambda)$$
$$\eta' = [7.63992]\ \rho \cos \varphi' \sin d \sin (\mu - \lambda) = [7.63992]\ \xi \sin d$$

ζ' is not needed.

(2) The co-ordinates x and y of the axis of the shadow are taken from the tables of elements for the same assumed moment of Greenwich mean time, together with their variations for one minute, which are equal to one-tenth of the differences of two consecutive numbers. The variations for one minute are represented by x' and y'. Their logarithms are given at the foot of the tables.

(3) The distance m and position-angle M of the axis of the shadow relative to the observer, and the relative motions, n and N, are computed by the formulæ:—

$$m \sin M = x - \xi$$
$$m \cos M = y - \eta$$
$$n \sin N = x' - \xi'$$
$$n \cos N = y' - \eta'$$

(4) The radius L of the shadow or penumbra at the distance ζ from the fundamental plane is computed by the formula

$$L = l - \zeta \tan f$$

l and f being found in the table of elements, and ζ computed in (1).

(5) If the time chosen for computation is exactly that of the beginning or end of the eclipse, we shall have—

$$m = L$$

But, as this condition can scarcely ever be fulfilled on a first trial, a correction τ to the assumed time is computed thus: Find the angle ψ from the equation,

$$\sin \psi = \frac{m \sin (M - N)}{L}$$

There will be two values to this angle, of which one will be in the first and the other in the second quadrant when sin ψ is positive, and one in the third and the other in the fourth when sin ψ is negative. But, simplicity will be gained by taking only that value of ψ for which cos ψ is positive. This value lies between the limits $+ 90°$ and $- 90°$. The correction τ to the assumed time will be found in minutes, from—

For beginning: $$\tau = -\frac{m \cos (M - N)}{n} - \frac{L \cos \psi}{n}$$

For ending: $$\tau = -\frac{m \cos (M - N)}{n} + \frac{L \cos \psi}{n}$$

One such pair of values of τ cannot, however, give the times of both beginning and ending with accuracy. To attain accuracy we must, in commencing the computation, assume two times, one near that of beginning, and another near that of ending. These approximate times may be derived from the chart of the eclipse The computation for the first assumed time will give a small value of τ which, applied to the assumed time, will give a nearly correct time for the beginning of the eclipse, and a large value which, added to the assumed time, will give an inaccurate time of ending The computation for the second assumed time will give a small and nearly correct value of τ, to be applied to the assumed time for the end, and a large negative and inaccurate one to be subtracted for the beginning. We shall thus deduce two times of each phase, only one of which is to be considered approximately correct

The more accurate times of beginning and ending may now be taken in place of the first assumed ones, and the computation may be repeated from the beginning, leading to a pair of values of τ, which should be very small and accurate. Such a repetition of the computation will in general be advisable, to guard against accidental numerical errors. The following theorem will, however, enable us to obtain a second approximation to the true times of each phase without repeating the computation.

THEOREM.—*The error of each result is approximately proportional to the square of the correction τ, multiplied by the sine of the sun's hour angle, $(\mu - \lambda)$, for the middle of the interval between the time of computation and that of the phase.*

To apply this theorem we find the two values of $\tau^2 \sin(\mu - \lambda)$ corresponding to the required phase. We then find the ratio of these quantities which will commonly be a large number, and divide the difference of the results by this ratio. The quotient will be a correction to be applied to the more accurate result in such a way as to make it deviate yet more from the less accurate one. This correction should be positive in the local forenoon, and negative in the afternoon, and its value should never materially exceed $0^m.001$.

Unless the times chosen for computation are unusually in error, say ten minutes or more, the corrected results thus obtained will be theoretically correct within less than a second. But to guard against numerical errors it is better, after making this final correction, to repeat the computations so far as to obtain new values of m and L for the corrected times. If these two quantities agree within a unit of the fourth place of decimals, the times employed are generally correct within a second of time. If they differ too widely, further corrections and computations may be made by the computer according to his own judgment.

It may be remarked that the uncertainty of the ephemerides is such that a prediction may be several seconds in error from this unavoidable cause alone.

Position-angle of Point of Contact.—The position angle P, of the point of contact, reckoned from the north point of the sun's limb toward the east, is found by the formula

For beginning: $P = N - \psi \pm 180°$

For end: $P = N + \psi$

it being assumed that, in each case, the value of ψ is taken between the limits $\pm 90°$.

Computation of the Solar Eclipse of 1897, July 29, for St. John, Island of Antigua, whose position is—

$$\text{Latitude, } \varphi = +17°\ 6'\ 13''$$
$$\text{Longitude, } \lambda = +61\ 50\ 28$$

Constants for the given place:—

$$\rho \sin \varphi' = 9.46568$$
$$\rho \cos \varphi' = 9.98048$$

From the Eclipse Charts we find the approximate times of the phases to be—

		d	h	m	
Beginning	July	29	2	0	Greenwich Mean Time.
Annulus			3	45	
Ending			5	30	

		Beginning	Annulus	Ending
Greenwich Mean Time,	July	$29^d\ 2^h\ 0^m$	$3^h\ 45^m$	$5^h\ 30^m$
		° ′ ″	° ′ ″	° ′ ″
	μ	28 26 30	54 41 42	80 56 54
	λ	+ 61 50 28	61 50 28	61 50 28
	$\mu - \lambda$	− 33 23 58	− 7 8 46	+ 19 6 26
	$\rho \cos \varphi'$	9.98048	9.98048	9.98048
	$\sin(\mu - \lambda)$	9.74074 n	9.09482 n	9.51500
	$\log \xi$	9.72122 n	9.07530 n	9.49548
	ξ	− 0.52626	− 0.11893	+ 0.31295

	Greenwich Mean Time, July 29^d	Beginning. 2^h 0^m	Annulus. 3^h 45^m	Ending. 5^h 30^m
	$\rho \sin \varphi'$	9.46568	9.46568	9.46568
	$\cos d$	9.97664	9.97669	9.97673
		9.44232	9.44237	9.44241
	(1)	+ 0.27690	+ 0.27693	+ 0.27696
	$\rho \cos \varphi'$	9.98048	9.98048	9.98048
	$\sin d$	9.50426	9.50389	9.50351
	$\cos (\mu - \lambda)$	9.92161	9.99661	9.97539
		9.40635	9.48098	9.45938
	(2)	+ 0.25489	+ 0.30268	+ 0.28799
(1)−(2)	η	+ 0.02201	− 0.02575	− 0.01103
	$\rho \sin \varphi' \sin d$	8.96994	8.96957	8.96919
	(3)	+ 0.09331	+ 0.09323	+ 0.09315
	$\rho \cos \varphi' \cos d \cos (\mu - \lambda)$	9.87873	9.95378	9.93260
	(4)	+ 0.75636	+ 0.89904	+ 0.85625
(3)+(4)	ζ	+ 0.84967	+ 0.99227	+ 0.94940
	const. log	7.63992	7.63992	7.63992
	$\rho \cos \varphi' \cos (\mu - \lambda)$	9.90209	9.97709	9.95587
	$\log \xi'$	7.54201	7.61701	7.59579
	ξ'	+ 0.003483	+ 0.004140	+ 0.003943
	const. log	7.63992	7.63992	7.63992
	$\xi \sin d$	9.22548 n	8.57919 n	8.99899
	$\log \eta'$	6.86540 n	6.21911 n	6.63891
	η'	− 0.000733	− 0.000166	+ 0.000435
	$x - \xi$	− 0.46989	− 0.00406	+ 0.43713
	$y - \eta$	+ 0.27592	+ 0.00214	− 0.33479
	$x' - \xi'$	+ 0.004833	+ 0.004176	+ 0.004371
	$y' - \eta'$	− 0.002325	− 0.002899	− 0.003507
	$m \sin M$	9.67200 n	7.60853 n	9.64061
	$m \cos M$	9.44078	7.33041	9.52477 n
	$\tan M$	0.23122 n	0.27812 n	0.11584 n
	M	300° 25′ 16″	297° 47′ 35″	127° 26′ 52″
	$\cos M$	9.70445	9.66865	9.78393 n
	$\log m$	9.73633	7.66176	9.74084
	$n \sin N$	7.68422	7.62076	7.64058
	$n \cos N$	7.36642 n	7.46225 n	7.54494 n
	$\tan N$	0.31780 n	0.15851 n	0.09564 n
	N	115° 41′ 25″	124° 46′ 7″	128° 44′ 30″
	$\cos N$	9.63700 n	9.75608 n	9.79644 n
	$\log n$	7.72942	7.70617	7.74850
	$\tan f$	7.66345	7.66129	7.66346
	$\log \zeta$	9.92925	9.99663	9.97745
		7.59270	7.65792	7.64091
	$\zeta \tan f$	+ 0.00391	+ 0.00455	+ 0.00437
	l	+ 0.55356	+ 0.00746	+ 0.55318
	L	+ 0.54965	+ 0.00291	+ 0.54881

		Beginning	Annulus	Ending
Greenwich Mean Time,	July	29^d 2^h 0^m	3^h 45^m	5^h 30^m
	$M - N$	184° 43′ 51″	173° 1′ 28″	− 1° 17′ 38″
	$\sin (M - N)$	8.91632 n	9.08438	8.35375 n
	$\log m$	9.73633	7.66176	9.74084
	colog L	0.25991	2.53611	0.26058
	$\sin \phi$	8.91256 n	9.28225	8.35517 n
	ϕ	− 4° 41′ 24″	+11° 2′ 33″	− 1° 17′ 54″
	$\log \frac{m}{n}$	2.00691	9.95559	1.99234
	$\cos (M - N)$	9.99852 n	9.99677 n	9.99989
		2.00543 n	9.95236 n	1.99223
	$-\frac{m}{n} \cos (M - N)$	+101.258	+ 0.896	−98.227
	$\log L$	9.74009	7.46389	9.73942
	$\cos \phi$	9.99855	9.99188	9.99989
	colog n	2.27058	2.29383	2.25150
		2.00922	9.74960	1.99081
	$\frac{L \cos \phi}{n}$	∓102.145	∓ 0.562	±97.906
	τ	− 0^m.887	+ 0^m.334 + 1.458	− 0^m.321
	T	2^h 0^m	3^h 45^m	5^h 30^m
	t	1 59.113	3 45.334 3 46.458	5 29.679
	λ	+ 4 7.365	4 7.365	4 7.365
Local Mean Time,	July	28^d 21^h 51^m.748	28^d 23^h 37^m.969 28 23 39.093	29^d 1^h 22^m.314
Duration of Annulus,			1^m.124	

No correction is necessary since the assumed times differ very little from the computed ones.

Therefore we have

		d	h	m	s	
Beginning of the eclipse,	July	28	21	51	44.9	Local Mean Time.
Beginning of Annulus,	"	28	23	37	58.1	
End of Annulus	"	28	23	39	5.6	
End of the eclipse,	"	29	1	22	18.8	

Angle of position:

	Beginning	Ending
N	115° 41′.4	128° 44′.5
ϕ (+ 180)	184 41.4	− 1 17.9
P	300 22.8	127 26.6

from the north point of the sun's disk towards the east for direct image

Pages 418—421 contain the mean places for 1897.0 of stars occulted by the moon in 1897, with their annual proper motions

Elements of Occultations.—Pages 422—451 give the elements for the prediction of the times of occultation of stars and planets by the moon. In the columns referring to the star, those headed *Red'ns from* 1897.0 give the quantities necessary to reduce the mean place of the star at the beginning of 1897 to its apparent place at the time of occultation. These reductions are sufficiently accurate to be definitive.

The quantities in the following five columns are all given for the moment of geocentric conjunction of the star and moon in right ascension. Let there be a line passing from the star through the centre of the moon, and let a plane perpendicular to this line pass through the centre of the earth: this plane will be the fundamental plane for the occultation. The system of co-ordinates is similar to that already described for eclipses. The cone circumscribing the moon and star may be regarded as a cylinder having everywhere the same diameter as the moon. This cylinder will intercept the fundamental plane in a circle of which the linear diameter will be the same as that of the moon.

The *Washington Mean Time* is the moment at which the two bodies are in geocentric conjunction in right ascension. At this moment the co-ordinate x of the axis of the cylinder on the fundamental plane has the value zero. The column *Hour-Angle H* gives the common geocentric hour-angle of the moon and star at the same moment, counted from the meridian of Washington—positive toward the west and negative toward the east. Column Y gives the co-ordinate y of the axis of the cylinder upon the fundamental plane at the same moment. Columns x' and y' give the hourly variation of x and y. The linear unit in these columns is the earth's equatorial radius. The limiting parallels, north and south, show the extreme limits of latitude within which the occultation will be visible.

By the aid of these elements, the Washington mean time of immersion and emersion of a star behind the limb of the moon may be computed for any part of the earth by a method nearly the same as that already explained for computing eclipses, only more simple.

We shall first show how to compute an isolated occultation for a particular place, assuming it to be visible at that place, and then show how all the occultations which will be visible at a place may be selected and computed by a more rapid process.

(1) The geocentric co-ordinates of the place, $\rho \sin \varphi'$ and $\rho \cos \varphi'$, are to be computed with three or four places of decimals by the formulæ,

$$\rho \sin \varphi' = \frac{\sin \varphi}{G}$$

$$\rho \cos \varphi' = F \cos \varphi$$

already given in connection with eclipses.

As in the case of eclipses, it is necessary to have an approximate time of the phenomenon, corresponding to that obtained from the charts of the eclipses. The quantity H being the Washington west hour-angle of the two bodies at the moment of geocentric conjunction, $H - \lambda$ will be the local hour-angle of the star at this same moment. Let us call this angle h_0, putting

$$h_0 = H - \lambda$$

where λ is the longitude west of *Washington*.

The next step will then be to find the approximate moment of apparent conjunction in right ascension as seen from the place. An approximate correction to reduce the time and hour-angle for geocentric conjunction to those for apparent conjunction may be taken from Mr. DOWNES's table, on pages 454—455. This correction will have the same sign as h_0.

When this table is not available, the correction may be computed thus: Compute the quantities ξ_0, ξ' and τ from the formulæ,

$$\xi_0 = \rho \cos \varphi' \sin h_0$$

$$\xi' = [9.4192] \cos (h_0 + \tfrac{1}{3} h_0)$$

$$\tau = \frac{\xi_0}{x' - \xi'}$$

τ will then be the approximate interval between the times of geocentric and local conjunction. By applying it to the Washington mean time of the former, as given with the elements, we shall have the Washington mean time of the latter within a few minutes.

The average duration of an occultation is about an hour. Thence, by adding $0^h.5$ to and subtracting it from the mean time of apparent conjunction, we shall have approximate times of the phases of immersion and emersion for farther computation. Let us then put,

$\tau_1 = \tau - 0^h.5$

$\tau_2 = \tau + 0^h.5$

T, the Washington mean time of geocentric conjunction in R. A.

d, the declination of the star.

(2) Compute for the moments $T + \tau_1$ and $T + \tau_2$ the following quantities, in which we write τ for each of the quantities τ_1 and τ_2. The latter, when used as angles, are to be changed to arc by multiplying by 15, and the minutes are to be further increased by one-sixth the number of degrees in order to reduce to the sidereal hour angle.

$$\xi = \rho \cos \varphi' \sin (h_o + \tau)$$
$$\eta = \rho \sin \varphi' \cos d - \rho \cos \varphi' \sin d \cos (h_o + \tau)$$
$$\xi' = [9.41916]\, \rho \cos \varphi' \cos (h_o + \tau)$$
$$\eta' = [9.41916]\, \rho \cos \varphi' \sin d \sin (h_o + \tau) = [9.41916]\, \xi \sin d$$
$$x = x'\tau$$
$$y = Y + y'\tau$$

Compute m, M, n and N from the equations

$$m \sin M = x - \xi$$
$$m \cos M = y - \eta$$
$$n \sin N = x' - \xi'$$
$$n \cos N = y' - \eta'$$
$$n' = \frac{n}{60} = [8.22185]\, n$$
$$\sin \psi = [0.56500]\, m \sin (M - N)$$

Then, t_1 and t_2 from the equations

$$t_1 = -\frac{m}{n'} \cos (M - N) - \frac{[9.43500]}{n'} \cos \psi \quad \text{(Beginning.)}$$

$$t_2 = -\frac{m}{n'} \cos (M - N) + \frac{[9.43500]}{n'} \cos \psi \quad \text{(End.)}$$

The quantities t_1 and t_2 will then be the corrections in minutes to be applied to the respective times $T + \tau_1$ and $T + \tau_2$ to obtain the Washington mean times of the phases.

As in the case of eclipses, the small value of t_1 will give an accurate result for one phase, and the large value an inaccurate result for the other. Both accurate results may then be corrected by comparison with the inaccurate one, in the way described for eclipses, and a result obtained which will probably be correct within a fraction of a minute of time.

As a check upon the result, it will be advisable to compute ξ, η, x and y for the moments finally obtained. If the times are correct these quantities will fulfil the condition,

$$\sqrt{(x - \xi)^2 + (y - \eta)^2} = 0.27227$$

If $\log m \sin (M - N) = 9.43500$ nearly, a recalculation will generally be necessary to determine whether, numerically, $\sin \psi < 1$, or $\sin \psi > 1$. In the latter case, the impossible value of $\sin \psi$ indicates that an occultation at the given place is impossible, unless the computed distance from the moon's limb is within the errors of the ephemerides of the moon and star.

In such cases of near approach to the moon's limb, we may take $\psi = 90°$, or $270°$, according as $\sin (M - N)$ is positive or negative, and for finding the time of nearest approach,

$$t = -\frac{m \cos (M - N)}{n'}$$

Putting π for the moon's horizontal parallax, the distance from the moon's limb will be,

$$\pi\,[m \sin(M-N) - 0.27227]$$

disregarding the sign of $\sin(M-N)$; or, allowing for the augmentation of the semidiameter,

$$\pi\,[m \sin(M-N) - 0.27227]\,[1 + s \sin \pi]$$

where

$$s = \rho \cos \varphi' \cos d \cos(h_0 + \tau) + \rho \sin \varphi' \sin d$$

The position-angle P, of the line from the moon's centre to the star at the times of contact, reckoned from the north point toward the east, is given by the formulæ:—

$$P = N - \psi \qquad \text{for immersion,}$$
$$P = N + \psi \pm 180^\circ \quad \text{for emersion,}$$

it being supposed that the value of ψ, in each case, is taken between the limits $\pm$ 90°.

To find the angle from the vertex, we compute the angle C from the formula,

$$\tan C = \frac{\xi + t\,\xi'}{\eta + t\,\eta'}$$

in which the value of t corresponding to the phase is to be used. Then

$$V = P - C$$

is the angle from the vertex, also reckoned from the north toward the east.

As an example of an isolated occultation, we will compute that of η Tauri, on Nov. 9, 1897, for Northfield, whose position is

$$\varphi = +44^\circ\ 27'\ 41''.6$$
$$\lambda = +\ 1^{h}\ 4^{m}\ 23^{s}.77$$

Constants for the given place,

$$\rho \sin \varphi' = 9.84314$$
$$\rho \cos \varphi' = 9.85425$$

From the elements on page 447, we have

$$H = +3^{h}\ 11^{m}.9$$
$$h_0 = H - \lambda = +2\ \ 7.504$$

From DOWNES's Table, pages 454 and 455, or from the formulæ on page 514, we find the correction to the Washington mean time of geocentric conjunction to be about $+57^{m}$, therefore the Washington mean time of apparent conjunction at the given place is Nov. $9^{d}\ 16^{h}\ 31^{m}.2$; adding and subtracting 30^{m}, we shall have the approximate Washington mean times of immersion and emersion to be used in the computation, thus:

$$\tau_1 = +0^{h}\ 27^{m} \qquad T + \tau_1 = \text{Nov. } 9^{d}\ 16^{h}\ 1^{m}.2$$
$$\tau_2 = +1\ \ 27 \qquad T + \tau_2 = \quad 9\ \ 17\ \ 1.2$$

		Immersion.	Emersion.
		d h m	h m
Washington Mean Time,	November	9 16 1.2	17 1.2
	h_0	+ 2 7.504	+ 2 7.504
	τ (in sidereal time)	+ 0 27.074	+ 1 27.238
	$h_0 + \tau$ (in arc)	38° 38′ 40″	53° 41′ 8″
	$\rho \cos \varphi'$	9.85425	9.85425
	$\sin(h_0 + \tau)$	9.79553	9.90621
	$\log \xi$	9.64978	9.76046
	ξ	+ 0.44646	+ 0.57605

Washington Mean Time, November		Immersion $9^d\ 16^h\ 1^m.2$	Emersion $17^h\ 1^m.2$
	$\rho \sin \varphi'$	9.84314	9.84314
	$\cos d$	9.96143	9.96143
		9.80457	9.80457
	(1)	+ 0.63763	+ 0.63763
	$\rho \cos \varphi'$	9.85425	9.85425
	$\sin d$	9.60576	9.60576
	$\cos (h_0 + \tau)$	9.89267	9.77248
		9.35268	9.23249
	(2)	+ 0.22526	+ 0.17080
(1) (2)	η	+ 0.41237	+ 0.46683
	const log	9.41916	9.41916
	$\rho \cos \varphi' \cos (h_0 + \tau)$	9.74692	9.62673
	$\log \xi'$	9.16608	9.04589
	ξ'	+ 0.14658	+ 0.11115
	const. log	9.41916	9.41916
	$\xi \sin d$	9.25554	9.36622
	$\log \eta'$	8.67470	8.78538
	η'	+ 0.04728	+ 0.06101
	$\log x'$	9.73207	9.73207
	$\log \tau$	9.65321	0.16137
	$\log x$	9.38528	9.89344
	x	+ 0.24282	+ 0.78242
	$\log y'$	9.00689	9.00689
	$\log y' \tau$	8.66010	9.16826
	$y' \tau$	+ 0.04572	+ 0.14732
	Y'	+ 0.39490	+ 0.39490
	y	+ 0.44062	+ 0.54222
	$x - \xi$	− 0.20364	+ 0.20637
	$y - \eta$	+ 0.02825	+ 0.07539
	$x' - \xi'$.	+ 0.39302	+ 0.42845
	$y' - \eta'$	+ 0.05432	+ 0.04059
	$m \sin M$	9.30886 n	9.31465
	$m \cos M$	8.45102	8.87731
	$\tan M$	0.85784 n	0.43734
	M	277° 53′ 52″	69° 55′ 56″
	$\sin M$	9.99586 n	9.97280
	$\log m$	9.31300	9.34185
	$n \sin N$	9.59441	9.63190
	$n \cos N$	8.73496	8.60842
	$\tan N$	0.85945	1.02348
	N	82° 7′ 51″	84° 35′ 17″
	$\sin N$	9.99589	9.99806
	$\log n$	9.59852	9.63384
	colog 60	8.22185	8.22185
	$\log n'$	7.82037	7.85569

			Immersion.		Emersion.
Washington Mean Time,	November		$9^d\ 16^h\ 1^m.2$		$17^h\ 1^m.2$
	const. log		0.56500		0.56500
	log m		9.31300		9.34185
	sin $(M - N)$		9.43413 n		9.40314 n
	sin ψ		9.31213 n		9.30999 n
	ψ		$-11°\ 50'\ 24''$		$-11°\ 46'\ 51''$
	$\log \frac{m}{n'}$		1.49263		1.48616
	cos $(M - N)$		9.98334 n		9.98563
			1.47597 n		1.47179
	$-\frac{m}{n'} \cos (M - N)$	+	^{m} 29.921	−	^{m} 29.634
	const. log		9.43500		9.43500
	colog n'		2.17963		2.14431
	cos ϕ		9.99066		9.99075
			1.60529		1.57006
	$\frac{[9.43500] \cos \phi}{n'}$	−	^{m} 40.299	+	^{m} 37.159
	t	−	10.378	+	7.525
	T	Nov.	^{d} 9 ^{h} 16 ^{m} 1.200		^{h} 17 ^{m} 1.200
Washington Mean Time of Phase,		Nov.	9 15 50.822		17 8.725
	λ		1 4.396		1 4.396
Northfield Mean Time,		Nov.	9 14 46.426		16 4.329
Angle of position:			° ′		° ′
	N		82 7.8		84 35.3
	$\phi\ (+180°)$	−	11 50.4	−	11 46.8
	P		93 58.2		252 48.5

from the north point of the moon's limb toward the east for direct image.

Prediction of Many Occultations for a Given Place.—When it is desired to predict all the occultations which will be visible at some one place, tables may be constructed and applied in such a way as to greatly diminish the labor of computation. In using such tables, the most convenient course will be to find for each occultation the hour-angle of the star at the moment of apparent conjunction in right ascension, as seen from the place of observation. The table of elements, pages 422—451, gives H, the Washington hour-angle at the moment of geocentric conjunction. The corresponding geocentric hour-angle at the place will be

$$h_0 = H - \lambda \quad (\lambda = \text{west longitude from Washington}).$$

The moment of apparent conjunction, as seen from the station, will be given by the condition $\xi = x$; or, using the values of ξ and x,

$$\rho \cos \varphi' \sin h = x' \tau$$

h being the west hour-angle of the star at the moment in question, and τ the interval, in hours of mean time, which has elapsed since geocentric conjunction. We shall therefore have,

$$h = h_0 + \tau$$

for the hour-angle at the end of the interval τ after geocentric conjunction. In strictness, τ should here be multiplied by the factor $1 + \frac{1}{365.25}$, because the star moves a little more than 15° in an hour of mean time, but the error arising from the neglect of the factor is too small to be important, as it will affect the predicted time of conjunction by less than 10 seconds. The equation for finding τ is therefore,

$$\rho \cos \varphi' \sin (h_0 + \tau) = x' \tau$$

The quantities h_0 and x' being derived immediately from the data of the Ephemeris, the quantity τ is readily obtained by successive approximation, and may be tabulated as a function of h_0 and x'. The computation of τ is effected as follows. We have

$$\sin (h_0 + \tau) = \sin h_0 + 2 \sin \tfrac{1}{2} \tau \cos (h_0 + \tfrac{1}{2} \tau) \tag{1}$$

The value of τ in arc being seldom more than 24° we may put τ itself for $2 \sin \frac{1}{2} \tau$. The equation will then become

$$\rho \cos \varphi' \sin h_0 + \tau \rho \cos \varphi' \cos (h_0 + \tfrac{1}{2} \tau) = x' \tau$$

from which we find

$$\tau = \frac{\rho \cos \varphi' \sin h_0}{x' - \rho \cos \varphi' \cos (h_0 + \frac{1}{2} \tau)} \tag{2}$$

To tabulate τ, we must first have a table of the quantities

$$\begin{aligned} \xi &= \rho \cos \varphi' \sin h \\ \xi' &= [9.41916]\, \rho \cos \varphi' \cos h \end{aligned} \tag{3}$$

which table may be formed for every 10 minutes (in time) of h. If we then put ξ_0 for the value of ξ corresponding to $h = h_0$ and ξ'_1 for the value of ξ' corresponding to $h = h_0 + \frac{1}{2} \tau$, we shall have

$$\tau = \frac{\xi_0}{x' - \xi'_1} \tag{4}$$

Since we must know the value of τ, approximately, before we can take ξ'_1 from the table, this equation can be solved only by successive approximations. The approximations converge so rapidly as to offer no difficulty. It will be best to begin by comparing values of τ for the two extremes of x', namely $x' = 0.48$ and $x' = 0.60$, because the approximate values of τ can then be interpolated for all the intermediate values of x'. For the first approximation may be taken—

$$\begin{aligned} \tfrac{1}{2} \tau &= 50^m \sin \tfrac{4}{3} h_0 \quad (\text{for } x' = 0.48) \\ \tfrac{1}{2} \tau &= 40^m \sin \tfrac{4}{3} h_0 \quad (\text{for } x' = 0.60) \end{aligned} \tag{5}$$

or, the approximate values of τ may be taken from Mr. Downes's table, pages 454–455. It will be best to make the computation for every 30^m of h_0, and to find the intermediate values of τ for every 10^m by interpolation. Then for each 30^m of h_0 we take ξ' from a table with the argument $h_0 + \frac{1}{2} \tau$, and $\log \xi$ with the argument h_0, and thence compute τ by (4). If the value of τ thus arrived at differs more than 3^m from that employed in taking out ξ' a new value may be used to correct ξ', and the computation may be repeated. The values corresponding to $x' = 0.51$, $x' = 0.54$, and $x' = 0.57$ can then be computed with the single interpolation of approximate values of τ, and afterward the table can be extended by interpolation to every 0.01 of x' between $x' = 0.48$ and $x' = 0.60$. It will be best to compute τ in the first place to every 0.001 of an hour, and to drop the last figure in forming the definitive table. The table thus formed will be called *Table I.*

The values of η and η' may then be tabulated for every degree of the star's declination, and every 10^m of h. It is a mere question of convenience whether to compute the table for negative values of d, since by putting

$$\eta_1 = \rho \sin \varphi' \cos d$$
$$\eta_2 = -\rho \cos \varphi' \sin d \cos h$$

η_1 may be given in a table of single-entry; and taking η_2 from the table of double-entry for a positive d, we shall have

$$\eta = \eta_1 \pm \eta_2$$

the lower sign being used for a negative d. But the extension of the table for η to negative values of d is so readily made that it will probably be found better to do it, so as to save taking out η_1 and η_2 separately.

This table for η will be called *Table II*, and the corresponding one for η' with the same arguments *Table III*. The precepts for using the tables will then be as follow:—

From Table I with the arguments x' and $H - \lambda = h_0$ take out the value of τ. It will be sufficient to use the nearest 0.01 of x'. τ will be of the same sign as h_0. Then, enter Table II with the arguments d (the star's declination) and $h = h_0 + \tau$, and take out the value of η. Form the quantities $y = Y + y'\tau$, and $y - \eta$. If the latter quantity lies between the limits $\pm$ 0.28, it is almost certain that there will be an occultation. If it falls without the limits $\pm$ 0.33, it is almost certain that there will not be an occultation. A convenient rule to adopt will be—

$$\begin{array}{rl} y' < 0.10, & \text{limits} = \pm 0.29 \\ 0.10 < y' < 0.15, & \text{limits} = \pm 0.30 \\ 0.15 < y' < 0.20, & \text{limits} = \pm 0.31 \\ 0.20 < y' \qquad & \text{limits} = \pm 0.33 \end{array}$$

Here, only the absolute value of y' is to be considered, without respect to its algebraic sign.

If $y - \eta$ falls between the limits thus indicated, take the values of ξ' and η' from the appropriate tables and compute v, Q and $\triangle$ from the equations

$$v \sin Q = y' - \eta'$$
$$v \cos Q = x' - \xi'$$
$$\triangle = (y - \eta) \cos Q$$

If $\triangle > 0.2723$ or $\log \triangle > 9.4350$ there will be no occultation, though the moon may graze the star when $\triangle - 0.2723$ is very small. If $\triangle < 0.2723$, compute

$$\tau_1 = -\frac{y - \eta}{v} \sin Q \qquad \cos P = \frac{\triangle}{0.2723} \quad (P < 180°)$$

$$\tau_2 = \frac{0.2723 \sin P}{v}$$

We shall then have—

Local mean time of immersion, $T - \lambda + \tau + \tau_1 - \tau_2$
Local mean time of emersion, $T - \lambda + \tau + \tau_1 + \tau_2$

Position-angle from north toward east at immersion, $180° - Q - P$
Position-angle from north toward east at emersion, $180° - Q + P$

In predicting the occultations for a given place, the first operation will be to go over the list of occultations in the Ephemeris, and select those which may be visible. The conditions of possible visibility are:—

1. The limiting parallels in the last columns must include the latitude of the place.

2. The quantity $H - \lambda$, taken without regard to sign, must be less than the semi diurnal arc of the star by at least one hour. On very rare occasions an emersion might be seen in the east horizon, or an immersion in the west, when this difference is a few minutes less than an hour.

3. The sun must not be much more than an hour above the horizon at the local mean time $T - \lambda$, unless the star is bright enough to be seen in the day time.

The most convenient course will be to write the value of $-\lambda$ on the bottom of a sheet of paper, and passing through the list of occultations, pause over each one for which condition (1) is fulfilled, and examine whether conditions (2) and (3) are fulfilled. If either fails, the computer passes on. Very often it will require some examination to find whether $H - \lambda$ or $T - \lambda$ falls within the limits; in these cases, the computer may mark the occultation for trial and leave the decision for the subsequent operations. The whole list can be gone over in less than a day, and it will probably be found that about one-tenth of the occultations are marked for trial.

Phenomena of Planets and Satellites, pages 456—489.—These are, for the most part, sufficiently explained in the body of the work. The following additional explanations are added for completeness:—

Disks of Mercury and Venus, pages 456—457.—The angle θ, needed in reducing meridian observations, is the angle which the arc of the great circle from the planet to the sun, makes with the arc from the planet toward the west, reckoned in the direction west, north, east, south. This position-angle is reckoned from 0° to 360°, as in the measurement of double stars, the planet taking the place of the central star. But its measure is 90° greater than that of a double star.

We may also regard θ as expressing the angle which the line of cusps makes with the meridian, the positive direction of the meridian being toward the north, and the positive direction of the line of cusps that in which a person following this line would have the illuminated portion of the disk on his right.

Disk of Mars, page 458.—This page gives the apparent disk of the planet for every thirtieth day throughout the year.

Satellites of Jupiter, pages 459—483.—The times of phenomena are explained at the foot of each page; the diagram is on page 459.

Phenomena, pages 490—491.—The conjunctions, quadratures, and oppositions of the planets with respect to the sun, give the hours when the longitude of each planet differs from that of the sun by 0°, 90°, or 180°.

The conjunctions of the moon and planets with each other are given in right ascension. The degrees and minutes to the right show the difference of declination at the moment of conjunction.

Latitude by Observed Altitude of Polaris.—Table IV replaces the Tables A, B, C, D, given as a *Supplement* to the volumes of the Ephemeris for 1874—1881, and is intended for use at sea and reconnaissance on land. It will furnish an approximate value of the latitude, the probable error of which, in so far as the table is concerned, will be a few tenths of a minute of arc.

The directions for using the table are adapted to a right ascension of Polaris equal to $1^h\ 21^m\ 2$. Somewhat greater accuracy may be insured by substituting the right ascension of Polaris at the date of observation, from pages 302—313 of this volume.

APPENDIX.

ON THE CONSTRUCTION OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC FOR 1897.

In the formulæ and numbers relating to the fixed stars, pages 280–292, the adopted constants of precession and aberration are those of Struve, and the nutation is that of Peters, namely:

$$\text{Precession} = 50''.2411 + 0''.0002268\ t$$
$$\text{Nutation} = 9''.2231 + 0''.000009\ t$$
$$\text{Aberration} = 20''.4451$$

in which t is the number of years after 1800. These quantities have been used in all computations relating to the fixed stars.

The obliquity and nutation given on page 278 are derived from Hansen's *Tables du Soleil*. These numbers have been used in all the ephemerides of the sun, moon and planets.

Hansen's obliquity of the ecliptic is 0''.27 greater than that of Peters given in the issues of this Ephemeris before 1882.

A comparison of Hansen's mean obliquity with that of Peters and of Le Verrier at different epochs is given in the following table:—

Epoch.	Hansen.			Peters.	Le Verrier.	H.—P.	H.—L.
	°	′	″	″	″	″	″
1750	23	28	18.19	17.44	19.42	+ 0.75	− 1.23
1800	23	27	54.80	54.22	55.63	+ 0.58	− 0.83
1850	23	27	31.42	30.99	31.83	+ 0.43	− 0.41
1900	23	27	8.02	7.76	8.03	+ 0.26	− 0.01

The formulæ for reducing the places of the fixed stars, page 280, correspond to the *Star Tables of the American Ephemeris*, Washington, 1869.

The mean right ascensions of stars have been reduced to Newcomb's fundamental standard in the catalogue attached to the *Washington Observations for 1870*, Appendix II, with the following exceptions: The right ascensions of the 48 circumpolar stars north of 60° north declination are from Dr Gould's *Standard Places of Fundamental Stars*, second edition, United States Coast Survey Office, 1866. Of the twelve stars south of 50° south declination, the positions of γ Hydri, α Trianguli Australis, and σ Octantis, have been corrected from data furnished by Dr Gould; while the remaining nine are, as before, from the *British Nautical Almanac* for 1848.

The right ascensions of the additional stars in the general list, whose apparent right ascensions are given in a subsequent section, have been taken partly from the *Catalogue of 1098 Standard Clock and Zodiacal Stars*, forming Part IV of Vol. I of *Astronomical Papers Prepared for the Use of the American Ephemeris and Nautical Almanac*, Washington, 1881; and partly from the catalogue of the Astronomische Gesellschaft of 1878. A few have been derived from recent catalogues without a rigorous reduction for equinox.

The mean declinations of stars are taken from Boss's paper in the *Report of the Northern Boundary Commission*, Washington, 1879, for all stars found therein. The declinations of all the other stars have been reduced to the same standard, except those of the additional ones above, which have been taken partly from the Astronomische Gesellschaft list, and partly from places in recent catalogues. To the apparent places of Sirius and Procyon have been applied the periodic corrections resulting from Auwers's investigations.

The values of these corrections are :—

Year.	Sirius.		Procyon.	
1897.0	$\Delta\alpha = +0\overset{s}{.}068$	$\Delta\delta = +1\overset{''}{.}44$	$\Delta\alpha = +0\overset{s}{.}068$	$\Delta\delta = -0\overset{''}{.}24$
1898.0	$\Delta\alpha = +0.044$	$\Delta\delta = +1.44$	$\Delta\alpha = +0.065$	$\Delta\delta = -0.40$

The ephemeris of the sun is constructed from HANSEN *and* OLUFSEN'S *Tables du Soleil*, Copenhagen, 1853, except that STRUVE'S aberration has been used. This is equivalent to adding $0''.19$ to the true longitudes, but it does not affect the right ascensions and declinations. The sun's rectangular equatorial co-ordinates have been computed from the longitudes and latitudes by the following formulæ :—

$$X = R\cos\lambda$$
$$Y = R\sin\lambda\cos\omega - 19.3\,R\beta$$
$$Z = R\sin\lambda\sin\omega + 44.5\,R\beta$$

The reductions to mean equinox, 1897.0, are computed by the formulæ,

$$\Delta X' = +Y\sec\omega\,\Delta\lambda\sin 1''$$
$$\Delta Y' = -X\cos\omega\,\Delta\lambda\sin 1'' + Z\,\Delta\omega\sin 1'' - 9.4\,\tau R\sin(\lambda + 187^\circ)$$
$$\Delta Z' = -X\sin\omega\,\Delta\lambda\sin 1'' - Y\,\Delta\omega\sin 1'' + 21.7\,\tau R\sin(\lambda + 187^\circ)$$

Where—

λ and β are the longitude and latitude of the sun referred to the equinox and ecliptic of the date;

ω, the obliquity of the ecliptic;

$\Delta\lambda$, the reduction of longitude for precession and nutation from January 0;

$\Delta\omega$, the reduction of the mean to the apparent obliquity;

τ, the fraction of the year since January 0.

The numerical coefficients are in units of the seventh place of decimals. The correction for latitude has been taken from GOETZE'S paper in the *Astronomical Journal*, Vol. II, page 71.

The mean equatorial horizontal parallax of the sun, adopted from Professor NEWCOMB'S *Investigation of the Distance of the Sun and the Elements which depend on it*,* is $8''.848$. The adopted semidiameter of the sun at the earth's mean distance is $16'\ 2''$. In the computations pertaining to eclipses, BESSEL'S semidiameter, $15'\ 59''.788$ has been used.

The right ascension, declination and parallax of the moon are derived from HANSEN'S *Tables de la Lune*, London, 1857, the mean longitude being corrected in accordance with NEWCOMB'S *Researches on the Motion of the Moon*, Part I, page 268,† and a corrected table being substituted for Table XXXIV.

The semidiameter of the moon is computed from the moon's horizontal parallax by the formula,

$$S = 0.272274\,\pi + 2''.5$$

The constant $2''.5$ is omitted in the computation of eclipses and occultations, as due entirely to telescopic and ocular irradiation.

The ephemeris of Mercury is derived from Professor WINLOCK'S *Tables of Mercury*, Washington, 1864. They are based on the older theory of LE VERRIER, published in the Additions to the *Connaissance des Temps* for 1848.

The ephemeris of Venus is derived from Mr. G. W. HILL'S *Tables of Venus*, Washington, 1872.

The ephemeris of Mars is derived from manuscript tables constructed from LINDENAU'S Tables. Mr. HUGH BREEN'S results, contained in his paper *On the Corrections of* LINDENAU'S *Elements of Mars*, published in the *Memoirs of the Royal Astronomical Society*, Vol. XX, have also been discussed and applied; and LE VERRIER'S secular variations of the elements are

* *Astronomical Observations made at the U. S. Naval Observatory, Washington, 1865*, Appendix II.

† *Astronomical Observations made at the U. S. Naval Observatory, Washington, 1875*, Appendix II.

likewise adopted. The perturbations produced by Jupiter have been numerically increased by $\frac{1}{75}$ of their value. The following are the corresponding corrected elements and annual variations for Washington, 1855.0 -

$$L = 320^\circ\ 13'\ 33''.87 + 68910''.1527\ t$$
$$\pi = 333\ 23\ 17.84 + 65''.0000\ t$$
$$\Omega = 48\ 25\ 55.29 + 27''.0097\ t$$
$$i = 1\ 51\ 2.20 - 0''.02141\ t$$
$$e = 19238''.75 + 0''.18549\ t$$
$$n = 689050''.8927$$
$$a = 1.5236915$$

The ephemeris of Jupiter is derived from manuscript tables constructed from BOUVARD'S Tables, with such changes as were required to make them correspond more nearly to the formulæ.

The ephemeris of Saturn is derived from a provisional theory constructed by Mr. GEORGE W. HILL, and still unpublished.

The ephemerides of Uranus and Neptune are derived from Professor NEWCOMB'S Tables, published by the *Smithsonian Institution.*

The semidiameters of the planets are computed from the following values:—

	Semidiameter. "	Log Dist. "	Authority.
Mercury	3.34	0.00	LE VERRIER, *Theory of Mercury.*
Venus	8.546 ± 0.086	0.00	PEIRCE, from the Washington Observations of 1845 and 1846, made with the Mural Circle.
Mars	2.842 ± 0.057	0.25	
Jupiter (polar)	18.78 ± 0.067	0.70	
Saturn (polar)	8.77 ± 0.039	0.95	
Uranus	1.68 ± 0.3	1.30	
Neptune	1.28	1.48	
Jupiter (equatorial)	20.00	0.70	
Saturn (equatorial)	9.38	0.95	

The elements of eclipses of the sun and occultations of stars by the moon are given in accordance with BESSEL'S method, using the special forms in CHAUVENET'S *Spherical and Practical Astronomy.* The constants adopted for the eclipses are:—

Sun's mean equatorial horizontal parallax	. . . .	8''.800
Semidiameter of the sun at distance unity, BESSEL	. .	959.788
Ratio of radius of moon to radius of earth, BURCKHARDT .		0.27227

The eclipses of Jupiter's satellites are computed from TODD'S *Continuation of* DAMOISEAU'S *Tables*, Washington, 1876. The occultations, transits, etc., are computed from WOOLHOUSE'S Tables, *British Nautical Almanac* for 1835, Table II of each satellite having been adapted to DAMOISEAU'S Tables.

The positions of the satellites of Saturn are computed from the elements and Tables of Professor HALL, except Hyperion, which is from EICHELBERGER'S elements.

The apparent elements of the rings of Saturn are computed from BESSEL'S data, except those for the dusky ring.

The elongations of the satellites of Uranus, and of the satellite of Neptune are computed from the data of Professor NEWCOMB'S *Uranian and Neptunian Systems*, Washington, 1875.

In compiling the positions of observatories, the latest available data have been used. The positions have been furnished in many instances, through the courtesy of the directors of the Observatories, in response to a circular issued by the Superintendent of the American Ephemeris.

The reduction to geocentric latitude, and the logarithm of the radius of the earth, are derived from CLARKE's elements of the terrestrial spheroid, as adopted by the U. S. Coast and Geodetic Survey.

$$\log e = 8.9152503$$
$$\varphi' - \varphi = -11' \; 40''.43 \sin 2\varphi + 1''.19 \sin 4\varphi$$
$$\log \rho = 9.9992645 + 0.0007374 \cos 2\varphi - 0.0000019 \cos 4\varphi$$

Table IV, for finding the latitude from an observed altitude of Polaris, is constructed for—

(1) An altitude of Polaris equal to 45°.
(2) A declination of Polaris equal to + 88° 45′.4.

The principal computations of the Ephemeris have been distributed in the following manner:—

The ephemeris of the Sun was computed by Mrs. E. B. DAVIS; the Moon's longitude, latitude, semidiameter and horizontal parallax, by Professor KEITH; the right ascension and declination, by Professor VAN VLECK; the culminations, by Professor W. W. HENDRICKSON; the lunar distances, by Mr. BRADFORD; Mercury and Venus, by Mr. E. P. AUSTIN; Mars, Jupiter, Saturn, Uranus, and Neptune, by Mr. ROBERDEAU BUCHANAN; Jupiter's satellites, by Professor H. D. TODD; the satellites of Saturn, Uranus, and Neptune, by Mr. C. KEITH. The mean and apparent places of the fixed stars were prepared by Mr. HEDRICK and Miss E. A. HEDRICK; the general constants for their reduction, by Mr. BUCHANAN; the occultations, by Mr. AUHAGEN; and the eclipses were computed and the charts projected by Mr. BUCHANAN.

CORRECTION REQUIRED ON ACCOUNT OF SECOND DIFFERENCES OF THE MOON'S MOTION IN FINDING THE GREENWICH TIME CORRESPONDING TO A CORRECTED LUNAR DISTANCE

DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS

Approximate Interval h	m	h	m	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
				s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
0	20	2	40	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
0	30	2	30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9
0	40	2	20	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	10	11	11
0	50	2	10	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13
1	0	2	0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13	14	14
1	10	1	50	1	1	2	2	3	4	4	5	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	15
1	20	1	40	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	10	11	12	12	13	14	14	15	15	16
1	30	1	30	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16

DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS

h	m	h	m	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
				s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	7
0	20	2	40	7	7	7	7	8	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12
0	30	2	30	9	10	10	10	11	11	12	12	12	13	13	13	14	14	14	14	15	15	16	16	16	17	17	17
0	40	2	20	12	12	13	13	13	14	14	15	15	16	16	16	17	17	18	18	19	19	19	20	20	21	21	22
0	50	2	10	14	14	15	15	16	16	16	17	17	18	19	19	20	20	21	21	22	22	22	23	23	24	24	25
1	0	2	0	15	16	16	17	17	18	18	19	19	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28
1	10	1	50	16	17	17	18	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30
1	20	1	40	17	17	18	19	19	20	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	29	30	31
1	30	1	30	17	18	18	19	19	20	21	21	22	23	23	24	24	25	25	26	27	27	28	29	29	30	31	31

DIFFERENCE OF THE PROPORTIONAL LOGARITHMS IN THE EPHEMERIS

h	m	h	m	102	104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138
				s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	9	9	9	9
0	20	2	40	13	13	13	13	14	14	14	14	15	15	15	15	15	16	16	16	16	17	17
0	30	2	30	18	18	18	19	19	19	20	20	20	21	21	21	22	22	22	23	23	24	24
0	40	2	20	22	22	23	23	24	24	25	25	25	26	26	27	27	28	28	28	29	29	30
0	50	2	10	26	26	26	27	27	28	29	29	29	30	30	31	31	32	32	33	33	34	34
1	0	2	0	28	29	29	30	30	31	31	32	33	33	34	34	35	35	36	37	37	38	38
1	10	1	50	30	31	31	32	32	33	34	34	35	35	36	37	37	38	38	39	40	40	41
1	20	1	40	31	32	33	33	34	34	35	35	36	37	38	38	39	39	40	41	41	42	42
1	30	1	30	32	32	33	34	34	35	35	36	36	37	38	39	39	40	40	41	42	42	43

The correction is to be added to the approximate Greenwich time when the proportional logarithms in the Ephemeris are decreasing, and subtracted when they are increasing.

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Sidereal	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h	For Seconds	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	0 0.000	0 9.830	0 19.659	0 29.489	0 39.318	0 49.148	0 58.977	1 8.807	0	0.000
1	0 0.164	0 9.993	0 19.823	0 29.653	0 39.482	0 49.312	0 59.141	1 8.971	1	0.003
2	0 0.328	0 10.157	0 19.987	0 29.816	0 39.646	0 49.475	0 59.305	1 9.135	2	0.005
3	0 0.491	0 10.321	0 20.151	0 29.980	0 39.810	0 49.639	0 59.469	1 9.298	3	0.008
4	0 0.655	0 10.485	0 20.314	0 30.144	0 39.974	0 49.803	0 59.633	1 9.462	4	0.011
5	0 0.819	0 10.649	0 20.478	0 30.308	0 40.137	0 49.967	0 59.796	1 9.626	5	0.014
6	0 0.983	0 10.813	0 20.642	0 30.472	0 40.301	0 50.131	0 59.960	1 9.790	6	0.016
7	0 1.147	0 10.976	0 20.806	0 30.635	0 40.465	0 50.295	1 0.124	1 9.954	7	0.019
8	0 1.311	0 11.140	0 20.970	0 30.799	0 40.629	0 50.458	1 0.288	1 10.118	8	0.022
9	0 1.474	0 11.304	0 21.134	0 30.963	0 40.793	0 50.622	1 0.452	1 10.281	9	0.025
10	0 1.638	0 11.468	0 21.297	0 31.127	0 40.956	0 50.786	1 0.616	1 10.445	10	0.027
11	0 1.802	0 11.632	0 21.461	0 31.291	0 41.120	0 50.950	1 0.779	1 10.609	11	0.030
12	0 1.966	0 11.795	0 21.625	0 31.455	0 41.284	0 51.114	1 0.943	1 10.773	12	0.033
13	0 2.130	0 11.959	0 21.789	0 31.618	0 41.448	0 51.278	1 1.107	1 10.937	13	0.035
14	0 2.294	0 12.123	0 21.953	0 31.782	0 41.612	0 51.441	1 1.271	1 11.100	14	0.038
15	0 2.457	0 12.287	0 22.117	0 31.946	0 41.776	0 51.605	1 1.435	1 11.264	15	0.041
16	0 2.621	0 12.451	0 22.280	0 32.110	0 41.939	0 51.769	1 1.599	1 11.428	16	0.044
17	0 2.785	0 12.615	0 22.444	0 32.274	0 42.103	0 51.933	1 1.762	1 11.592	17	0.046
18	0 2.949	0 12.778	0 22.608	0 32.438	0 42.267	0 52.097	1 1.926	1 11.756	18	0.049
19	0 3.113	0 12.942	0 22.772	0 32.601	0 42.431	0 52.260	1 2.090	1 11.920	19	0.052
20	0 3.277	0 13.106	0 22.936	0 32.765	0 42.595	0 52.424	1 2.254	1 12.083	20	0.055
21	0 3.440	0 13.270	0 23.099	0 32.929	0 42.759	0 52.588	1 2.418	1 12.247	21	0.057
22	0 3.604	0 13.434	0 23.263	0 33.093	0 42.922	0 52.752	1 2.582	1 12.411	22	0.060
23	0 3.768	0 13.598	0 23.427	0 33.257	0 43.086	0 52.916	1 2.745	1 12.575	23	0.063
24	0 3.932	0 13.761	0 23.591	0 33.420	0 43.250	0 53.080	1 2.909	1 12.739	24	0.066
25	0 4.096	0 13.925	0 23.755	0 33.584	0 43.414	0 53.243	1 3.073	1 12.903	25	0.068
26	0 4.259	0 14.089	0 23.919	0 33.748	0 43.578	0 53.407	1 3.237	1 13.066	26	0.071
27	0 4.423	0 14.253	0 24.082	0 33.912	0 43.742	0 53.571	1 3.401	1 13.230	27	0.074
28	0 4.587	0 14.417	0 24.246	0 34.076	0 43.905	0 53.735	1 3.564	1 13.394	28	0.076
29	0 4.751	0 14.581	0 24.410	0 34.240	0 44.069	0 53.899	1 3.728	1 13.558	29	0.079
30	0 4.915	0 14.744	0 24.574	0 34.403	0 44.233	0 54.063	1 3.892	1 13.722	30	0.082
31	0 5.079	0 14.908	0 24.738	0 34.567	0 44.397	0 54.226	1 4.056	1 13.886	31	0.085
32	0 5.242	0 15.072	0 24.902	0 34.731	0 44.561	0 54.390	1 4.220	1 14.049	32	0.087
33	0 5.406	0 15.236	0 25.065	0 34.895	0 44.724	0 54.554	1 4.384	1 14.213	33	0.090
34	0 5.570	0 15.400	0 25.229	0 35.059	0 44.888	0 54.718	1 4.547	1 14.377	34	0.093
35	0 5.734	0 15.563	0 25.393	0 35.223	0 45.052	0 54.882	1 4.711	1 14.541	35	0.096
36	0 5.898	0 15.727	0 25.557	0 35.386	0 45.216	0 55.046	1 4.875	1 14.705	36	0.098
37	0 6.062	0 15.891	0 25.721	0 35.550	0 45.380	0 55.209	1 5.039	1 14.868	37	0.101
38	0 6.225	0 16.055	0 25.885	0 35.714	0 45.544	0 55.373	1 5.203	1 15.032	38	0.104
39	0 6.389	0 16.219	0 26.048	0 35.878	0 45.707	0 55.537	1 5.367	1 15.196	39	0.106
40	0 6.553	0 16.383	0 26.212	0 36.042	0 45.871	0 55.701	1 5.530	1 15.360	40	0.109
41	0 6.717	0 16.546	0 26.376	0 36.206	0 46.035	0 55.865	1 5.694	1 15.524	41	0.112
42	0 6.881	0 16.710	0 26.540	0 36.369	0 46.199	0 56.028	1 5.858	1 15.688	42	0.115
43	0 7.045	0 16.874	0 26.704	0 36.533	0 46.363	0 56.192	1 6.022	1 15.851	43	0.117
44	0 7.208	0 17.038	0 26.867	0 36.697	0 46.527	0 56.356	1 6.186	1 16.015	44	0.120
45	0 7.372	0 17.202	0 27.031	0 36.861	0 46.690	0 56.520	1 6.350	1 16.179	45	0.123
46	0 7.536	0 17.366	0 27.195	0 37.025	0 46.854	0 56.684	1 6.513	1 16.343	46	0.126
47	0 7.700	0 17.529	0 27.359	0 37.188	0 47.018	0 56.848	1 6.677	1 16.507	47	0.128
48	0 7.864	0 17.693	0 27.523	0 37.352	0 47.182	0 57.011	1 6.841	1 16.671	48	0.131
49	0 8.027	0 17.857	0 27.687	0 37.516	0 47.346	0 57.175	1 7.005	1 16.834	49	0.134
50	0 8.191	0 18.021	0 27.850	0 37.680	0 47.510	0 57.339	1 7.169	1 16.998	50	0.137
51	0 8.355	0 18.185	0 28.014	0 37.844	0 47.673	0 57.503	1 7.332	1 17.162	51	0.139
52	0 8.519	0 18.349	0 28.178	0 38.008	0 47.837	0 57.667	1 7.496	1 17.326	52	0.142
53	0 8.683	0 18.512	0 28.342	0 38.171	0 48.001	0 57.831	1 7.660	1 17.490	53	0.145
54	0 8.847	0 18.676	0 28.506	0 38.335	0 48.165	0 57.994	1 7.824	1 17.654	54	0.147
55	0 9.010	0 18.840	0 28.670	0 38.499	0 48.329	0 58.158	1 7.988	1 17.817	55	0.150
56	0 9.174	0 19.004	0 28.833	0 38.663	0 48.492	0 58.322	1 8.152	1 17.981	56	0.153
57	0 9.338	0 19.168	0 28.997	0 38.827	0 48.656	0 58.486	1 8.315	1 18.145	57	0.156
58	0 9.502	0 19.331	0 29.161	0 38.991	0 48.820	0 58.650	1 8.479	1 18.309	58	0.158
59	0 9.666	0 19.495	0 29.325	0 39.154	0 48.984	0 58.814	1 8.643	1 18.473	59	0.161
Sidereal	0^h	1^h	2^h	3^h	4^h	5^h	6^h	7^h	For Seconds	

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Side-real	8h	9h	10h	11h	12h	13h	14h	15h	Side-real
m	m s	m s	m s	m s	m s	m s	m s	m s	s s
0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 17.614	2 27.443	0 0.000
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 [illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 8.112	[illegible]	[illegible]	2 [illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 8.276	[illegible]	[illegible]	3 0.008
4	[illegible]	1 30.121	[illegible]	[illegible]	[illegible]	2 8.440	2 18.269	[illegible]	4 0.011
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 18.433	[illegible]	5 0.014
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 28.426	6 0.016
7	[illegible]	[illegible]	1 39.442	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7 0.019
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8 [illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 19.088	[illegible]	9 0.025
10	[illegible]	[illegible]	1 39.934	[illegible]	[illegible]	2 9.4 [illegible]	2 19.252	2 29.082	10 0.027
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 29.245	11 [illegible]
12	[illegible]	[illegible]	[illegible]	1 50.092	[illegible]	[illegible]	[illegible]	2 29.409	12 [illegible]
13	[illegible]	[illegible]	1 40.425	[illegible]	[illegible]	2 9.914	2 19.744	2 29.573	13 [illegible]
14	[illegible]	[illegible]	[illegible]	1 50.419	[illegible]	[illegible]	2 19.907	[illegible]	14 0.038
15	1 21.094	[illegible]	1 40.753	[illegible]	2 0.412	[illegible]	2 20.071	2 29.901	15 0.041
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 20.235	[illegible]	16 0.044
17	[illegible]	[illegible]	[illegible]	1 50.910	[illegible]	[illegible]	[illegible]	2 [illegible] 228	17 0.046
18	[illegible]	[illegible]	1 41.244	[illegible]	[illegible]	[illegible]	[illegible]	2 30.392	18 0.049
19	1 2[illegible].749	[illegible]	[illegible]	1 51.238	2 1.07	[illegible]	2 20.727	2 30.556	19 0.052
20	[illegible]	[illegible]	[illegible]	1 51.402	2 1.231	[illegible]	[illegible]	[illegible]	20 0.055
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 11.225	[illegible]	2 30.884	21 0.057
22	1 22.241	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 21.218	2 31.048	22 0.060
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 21.382	2 31.211	23 [illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 21.546	[illegible]	24 0.066
25	[illegible]	[illegible]	1 42.391	1 52.221	[illegible]	2 11.880	[illegible]	[illegible]	25 0.068
26	[illegible]	[illegible]	1 42.555	[illegible]	2 2.214	2 12.044	[illegible]	[illegible]	26 [illegible]
27	[illegible]	[illegible]	[illegible]	1 52.549	[illegible]	[illegible]	2 22.037	[illegible]	27 [illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 12.371	2 22.201	2 32.031	28 [illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 22.365	2 32.194	29 [illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 22.529	[illegible]	30 [illegible]
31	[illegible]	[illegible]	[illegible]	1 53.204	[illegible]	[illegible]	[illegible]	[illegible]	31 [illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32 [illegible]
33	1 24.045	[illegible]	[illegible]	[illegible]	[illegible]	2 13.191	[illegible]	[illegible]	33 [illegible]
34	[illegible]	[illegible]	[illegible]	1 53.695	2 3.525	2 13.354	[illegible]	[illegible]	34 [illegible]
35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35 [illegible]
36	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36 [illegible]
37	[illegible]	[illegible]	1 44.35 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37 [illegible]
38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38 [illegible]
39	[illegible]	[illegible]	[illegible]	1 54.514	2 4.344	2 14.17 [illegible]	[illegible]	[illegible]	39 [illegible]
40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 24.16 [illegible]	[illegible]	40 [illegible]
41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	41 [illegible]
42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	42 [illegible]
43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	43 [illegible]
44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	44 [illegible]
45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	45 [illegible]
46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46 [illegible]
47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 15.454	[illegible]	[illegible]	47 [illegible]
48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	48 0.131
49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	49 0.134
50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50 [illegible]
51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51 [illegible]
52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52 [illegible]
53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	53 [illegible]
54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54 [illegible]
55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	55 [illegible]
56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56 [illegible]
57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	57 [illegible]
58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58 0.158
59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59 0.161
Side-real	8h	9h	10h	11h	12h	13h	14h	15h	Side-real

[illegible]

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Sidereal.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	For Seconds.	
m	m s	m s	m s	m s	m s	m s	m s	m s	s	s
0	2 37.273	2 47.102	2 56.932	3 6.762	3 16.591	3 26.421	3 36.250	3 46.080	0	0.000
1	2 37.437	2 47.266	2 57.096	3 6.925	3 16.755	3 26.585	3 36.414	3 46.244	1	0.003
2	2 37.601	2 47.430	2 57.260	3 7.089	3 16.919	3 26.748	3 36.578	3 46.407	2	0.005
3	2 37.764	2 47.594	2 57.424	3 7.253	3 17.083	3 26.912	3 36.742	3 46.571	3	0.008
4	2 37.928	2 47.758	2 57.587	3 7.417	3 17.246	3 27.076	3 36.906	3 46.735	4	0.011
5	2 38.092	2 47.922	2 57.751	3 7.581	3 17.410	3 27.240	3 37.069	3 46.899	5	0.014
6	2 38.256	2 48.085	2 57.915	3 7.745	3 17.574	3 27.404	3 37.233	3 47.063	6	0.016
7	2 38.420	2 48.249	2 58.079	3 7.908	3 17.738	3 27.568	3 37.397	3 47.227	7	0.019
8	2 38.584	2 48.413	2 58.243	3 8.072	3 17.902	3 27.731	3 37.561	3 47.390	8	0.022
9	2 38.747	2 48.577	2 58.406	3 8.236	3 18.066	3 27.895	3 37.725	3 47.554	9	0.025
10	2 38.911	2 48.741	2 58.570	3 8.400	3 18.229	3 28.059	3 37.889	3 47.718	10	0.027
11	2 39.075	2 48.905	2 58.734	3 8.564	3 18.393	3 28.223	3 38.052	3 47.882	11	0.030
12	2 39.239	2 49.068	2 58.898	3 8.728	3 18.557	3 28.387	3 38.216	3 48.046	12	0.033
13	2 39.403	2 49.232	2 59.062	3 8.891	3 18.721	3 28.550	3 38.380	3 48.210	13	0.035
14	2 39.566	2 49.396	2 59.226	3 9.055	3 18.885	3 28.714	3 38.544	3 48.373	14	0.038
15	2 39.730	2 49.560	2 59.389	3 9.219	3 19.049	3 28.878	3 38.708	3 48.537	15	0.041
16	2 39.894	2 49.724	2 59.553	3 9.383	3 19.212	3 29.042	3 38.871	3 48.701	16	0.044
17	2 40.058	2 49.888	2 59.717	3 9.547	3 19.376	3 29.206	3 39.035	3 48.865	17	0.046
18	2 40.222	2 50.051	2 59.881	3 9.710	3 19.540	3 29.370	3 39.199	3 49.029	18	0.049
19	2 40.386	2 50.215	3 0.045	3 9.874	3 19.704	3 29.533	3 39.363	3 49.193	19	0.052
20	2 40.549	2 50.379	3 0.209	3 10.038	3 19.868	3 29.697	3 39.527	3 49.356	20	0.055
21	2 40.713	2 50.543	3 0.372	3 10.202	3 20.032	3 29.861	3 39.691	3 49.520	21	0.057
22	2 40.877	2 50.707	3 0.536	3 10.366	3 20.195	3 30.025	3 39.854	3 49.684	22	0.060
23	2 41.041	2 50.870	3 0.700	3 10.530	3 20.359	3 30.189	3 40.018	3 49.848	23	0.063
24	2 41.205	2 51.034	3 0.864	3 10.693	3 20.523	3 30.353	3 40.182	3 50.012	24	0.066
25	2 41.369	2 51.198	3 1.028	3 10.857	3 20.687	3 30.516	3 40.346	3 50.175	25	0.068
26	2 41.532	2 51.362	3 1.192	3 11.021	3 20.851	3 30.680	3 40.510	3 50.339	26	0.071
27	2 41.696	2 51.526	3 1.355	3 11.185	3 21.014	3 30.844	3 40.674	3 50.503	27	0.074
28	2 41.860	2 51.690	3 1.519	3 11.349	3 21.178	3 31.008	3 40.837	3 50.667	28	0.076
29	2 42.024	2 51.853	3 1.683	3 11.513	3 21.342	3 31.172	3 41.001	3 50.831	29	0.079
30	2 42.188	2 52.017	3 1.847	3 11.676	3 21.506	3 31.336	3 41.165	3 50.995	30	0.082
31	2 42.352	2 52.181	3 2.011	3 11.840	3 21.670	3 31.499	3 41.329	3 51.158	31	0.085
32	2 42.515	2 52.345	3 2.174	3 12.004	3 21.834	3 31.663	3 41.493	3 51.322	32	0.087
33	2 42.679	2 52.509	3 2.338	3 12.168	3 21.997	3 31.827	3 41.657	3 51.486	33	0.090
34	2 42.843	2 52.673	3 2.502	3 12.332	3 22.161	3 31.991	3 41.820	3 51.650	34	0.093
35	2 43.007	2 52.836	3 2.666	3 12.496	3 22.325	3 32.155	3 41.984	3 51.814	35	0.096
36	2 43.171	2 53.000	3 2.830	3 12.659	3 22.489	3 32.318	3 42.148	3 51.978	36	0.098
37	2 43.334	2 53.164	3 2.994	3 12.823	3 22.653	3 32.482	3 42.312	3 52.141	37	0.101
38	2 43.498	2 53.328	3 3.157	3 12.987	3 22.817	3 32.646	3 42.476	3 52.305	38	0.104
39	2 43.662	2 53.492	3 3.321	3 13.151	3 22.980	3 32.810	3 42.639	3 52.469	39	0.106
40	2 43.826	2 53.656	3 3.485	3 13.315	3 23.144	3 32.974	3 42.803	3 52.633	40	0.109
41	2 43.990	2 53.819	3 3.649	3 13.478	3 23.308	3 33.138	3 42.967	3 52.797	41	0.112
42	2 44.154	2 53.983	3 3.813	3 13.642	3 23.472	3 33.301	3 43.131	3 52.961	42	0.115
43	2 44.317	2 54.147	3 3.977	3 13.806	3 23.636	3 33.465	3 43.295	3 53.124	43	0.117
44	2 44.481	2 54.311	3 4.140	3 13.970	3 23.800	3 33.629	3 43.459	3 53.288	44	0.120
45	2 44.645	2 54.475	3 4.304	3 14.134	3 23.963	3 33.793	3 43.622	3 53.452	45	0.123
46	2 44.809	2 54.638	3 4.468	3 14.298	3 24.127	3 33.957	3 43.786	3 53.616	46	0.126
47	2 44.973	2 54.802	3 4.632	3 14.461	3 24.291	3 34.121	3 43.950	3 53.780	47	0.128
48	2 45.137	2 54.966	3 4.796	3 14.625	3 24.455	3 34.284	3 44.114	3 53.943	48	0.131
49	2 45.300	2 55.130	3 4.960	3 14.789	3 24.619	3 34.448	3 44.278	3 54.107	49	0.134
50	2 45.464	2 55.294	3 5.123	3 14.953	3 24.782	3 34.612	3 44.442	3 54.271	50	0.137
51	2 45.628	2 55.458	3 5.287	3 15.117	3 24.946	3 34.776	3 44.605	3 54.435	51	0.139
52	2 45.792	2 55.621	3 5.451	3 15.281	3 25.110	3 34.940	3 44.769	3 54.599	52	0.142
53	2 45.956	2 55.785	3 5.615	3 15.444	3 25.274	3 35.104	3 44.933	3 54.763	53	0.145
54	2 46.120	2 55.949	3 5.779	3 15.608	3 25.438	3 35.267	3 45.097	3 54.926	54	0.147
55	2 46.283	2 56.113	3 5.942	3 15.772	3 25.602	3 35.431	3 45.261	3 55.090	55	0.150
56	2 46.447	2 56.277	3 6.106	3 15.936	3 25.765	3 35.595	3 45.425	3 55.254	56	0.153
57	2 46.611	2 56.441	3 6.270	3 16.100	3 25.929	3 35.759	3 45.588	3 55.418	57	0.156
58	2 46.775	2 56.604	3 6.434	3 16.264	3 26.093	3 35.923	3 45.752	3 55.582	58	0.158
59	2 46.939	2 56.768	3 6.598	3 16.427	3 26.257	3 36.086	3 45.916	3 55.746	59	0.161
Sidereal	16h.	17h.	18h.	19h	20h.	21h.	22h.	23h.	For Seconds.	

TO BE ADDED TO A MEAN TIME INTERVAL.

Mean Time	0h	1h	2h	3h	4h	5h	6h	7h	Seconds
m	m s	m s	m s	m s	m s	m s	m s	m s	s
0	0 0.000	0 9.856	[illegible]	[illegible]	0 39.426	0 49.282	[illegible]	[illegible]	[illegible]
1	0 0.164	0 10.021	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	0 0.657	0 10.514	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	0 0.821	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 9.817	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	0 1.150	[illegible]	[illegible]	[illegible]	0 40.576	0 50.432	[illegible]	[illegible]	[illegible]
8	0 1.314	0 11.171	0 21.027	[illegible]	0 40.740	[illegible]	[illegible]	1 10.310	[illegible]
9	0 1.478	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 10.474	[illegible]
10	0 1.643	[illegible]	[illegible]	0 31.212	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	0 31.541	[illegible]	[illegible]	1 1.110	[illegible]	[illegible]
13	[illegible]	[illegible]	0 21.849	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	0 41.726	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	0 12.321	[illegible]	[illegible]	[illegible]	0 51.746	[illegible]	[illegible]	[illegible]
16	[illegible]	0 12.485	[illegible]	[illegible]	0 42.054	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.047
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	0 42.547	[illegible]	[illegible]	1 12.117	[illegible]
20	[illegible]	[illegible]	[illegible]	0 32.855	0 42.711	[illegible]	1 2.424	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 12.445	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	0 23.491	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 3.246	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 3.410	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	0 14.620	[illegible]	[illegible]	[illegible]	0 54.046	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
33	0 5.421	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34	[illegible]	0 15.444	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 5.710	[illegible]	[illegible]
41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean Time	0h	1h	2h	3h	4h	5h	6h	7h	Seconds